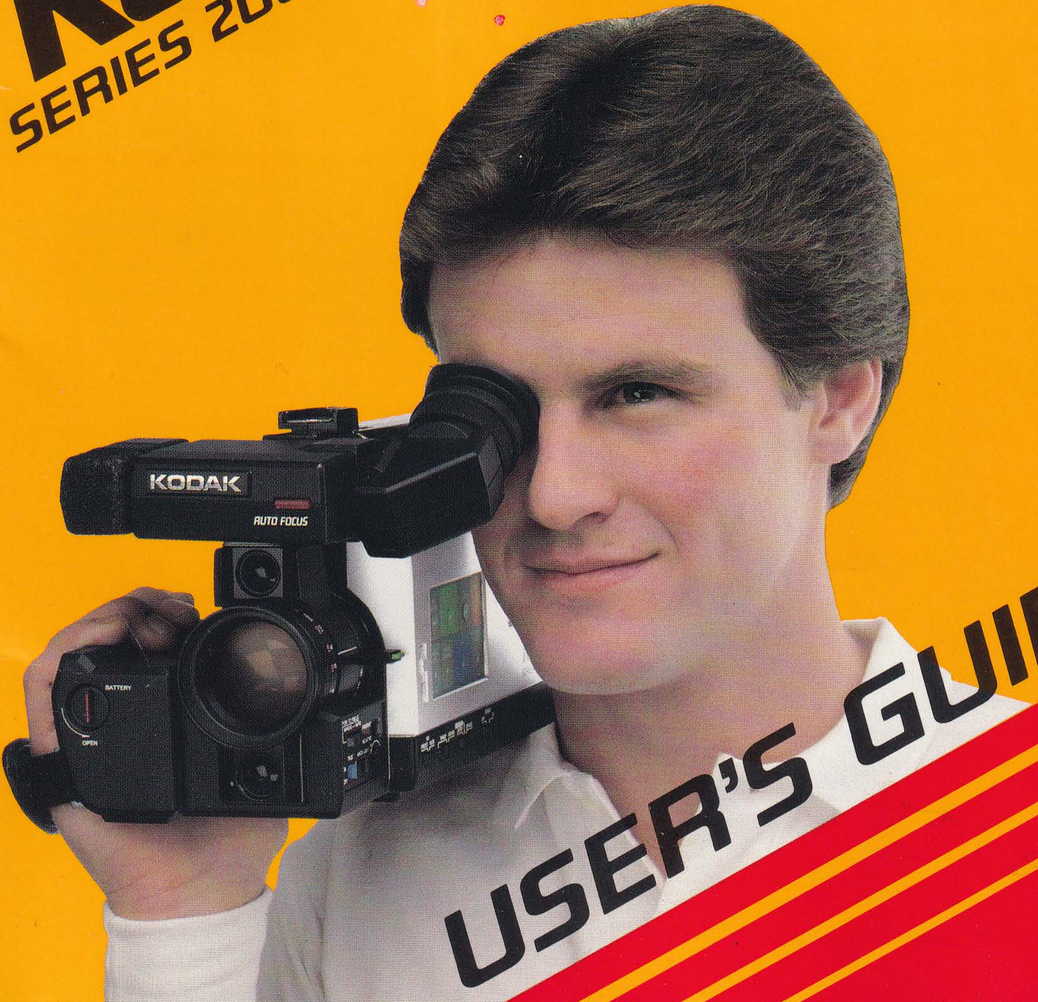
KODAVISION

SERIES 2000 CAMCORDERS 2200 AND 2400

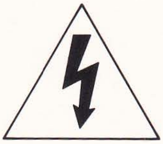

KODAK
AUTO FOCUS
BATTERY
OPEN

USER'S GUIDE

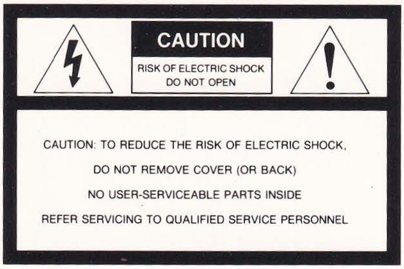
8

IMPORTANT WARNINGS AND PRECAUTIONS

This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications set forth in Subpart J of Part 15 of the FCC Rules. If this equipment does cause interference to radio or television reception which can be determined by turning the equipment on and off, use the equipment in another location and/or utilize an electrical outlet different from that used by the receiver.



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute risk of electric shock to persons.

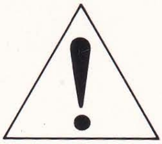


CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

CAUTION: To prevent electric shock do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

ATTENTION: Afin de prévenir tout risque de chocs électriques, ne pas utiliser de rallonge avec cette prise polarisée. De plus, ne pas brancher cetter fiche dans quelque prise de courant que ce soit si les lames ne peuvent être insérées à fond sans laisser de partie découverte.

This equipment generates and uses radio frequency energy and if not installed and used properly, that is in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the equipment with respect to the receiver.
- Move the equipment away from the receiver.
- Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

© Eastman Kodak Company, 1984

TABLE OF CONTENTS

GETTING TO KNOW YOUR CAMCORDER

- Important Safeguards and Precautions .... inside front cover
- Introduction 1a
- Location and Description of Features 2
- All You Can Do with Your Camcorder 4
- Optional Accessories for Your Camcorder 6
- About 8 mm KODAK Video Cassettes for Your Camcorder 8

USING YOUR CAMCORDER FOR THE FIRST TIME

- How to Set Up Your Camcorder for First-Time Use 10
- How to Shoot a Test Recording with Your Camcorder 12
- How to Play Back a Recording Through Camcorder Viewfinder................. 16
- How to Play Back a Recording on Your Television Set 18

GETTING THE MOST OUT OF YOUR CAMCORDER

- How to Use the Digital Counter and the Memory Feature 20
- How to Use the Date Set Feature (Model 2400 Only) 21
- How to Read the Electronic Viewfinder Indicators 22
- How to Use the Model 2400 Recording Controls.................. 24
- How to Use the Focus Controls on Your Camcorder 26
- How to Use the Zoom Lens Controls on Your Camcorder 28
- How to Use the Control Panel on Your Camcorder 30
- Tips and Techniques for Shooting Video Recordings 32
- Camcorder Symptom Analyzer 38
- Warranty and Service 40
- Packing Instructions......... inside back cover
- Technical Specifications ...... inside back cover
- Owner's Record .... inside back cover
- Quick Reference Card........ inside back cover

INTRODUCTION

Congratulations!

You've made a wise purchase decision. You now own one of the most technologically advanced pieces of video equipment available. Your KODAVISION Series 2000 Camcorder, Model 2200 or 2400, combines a video camera *and* recorder in a single lightweight unit for true portability and convenient operation.

The state-of-the-art electronics and sophisticated design of your camcorder will help you make and enjoy excellent quality video recordings using compact 8 mm video cassettes. And yet your camcorder is also plug-in compatible with current $^1/_2$-inch VHS- and BETA-format video cassette recorders. (Example: With your camcorder and the appropriate connectors, you can play back *to* or record *from* $^1/_2$-inch format video cassette recorders.

HOW TO USE THIS GUIDE

Your KODAVISION Series 2000 Camcorder, Model 2200 or 2400, is a precision instrument and it must be operated properly for highest performance.

This guide is provided to help make it easy for you to use all of the features of your camcorder. Both camcorder models (2200 and 2400) operate in essentially the same way. Where appropriate, the additional features of the Model 2400 are clearly explained.

It's important for you to know that the information in this user's guide is organized into three distinct areas, shown clearly on the preceding Table of Contents page. *Getting to Know Your Camcorder* will help you become familiar with camcorder features. *Using Your Camcorder for the First Time* covers basic recording and playback techniques. And *Getting the Most Out of Your Camcorder* describes advanced recording and playback features.

READ BEFORE OPENING

For best results, we urge you to read the first two areas of this manual (pages 1–19) thoroughly and carefully before attempting to operate your camcorder. Then, after you have shot and played back a test scene, you'll be ready to master the advanced functions described on pages 20–39. Also, it's a good idea to reread this guide periodically to refresh your memory on key points of operation. And be sure that everyone who will use your camcorder is completely familiar with the information in this user's guide.

FEATURES OF THIS GUIDE

As you review this booklet, you'll see that most operations are described in a clear, step-by-step manner, well illustrated with photographs and/or diagrams. In addition, nearly all of the descriptive material reads horizontally, from the left-hand page to the right-hand page. This is to help make it easy to follow the steps in their proper sequence. But if you are ever in doubt as to the correct order of a particular operation, simply refer to the *numbers* of each step.

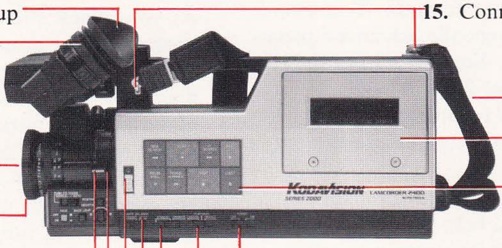
Other features of this user's guide include a "Symptom Analyzer" that can help save you time and money by telling you what to check before seeking service. And there's also a handy tear-off "Quick Reference Card" that you can carry with your camcorder as a convenient source of information.

← THESE PAGES FOLD OUT.

Fold out these pages for location and description of camcorder features. Refer back to these pages as you study this user's guide.

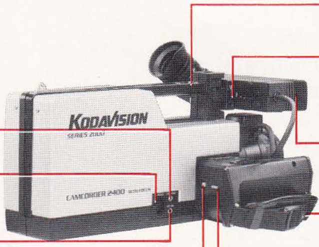
KODAVISION SERIES 2000 CAMCORDER, MODELS 2200 AND 2400

LEFT SIDE



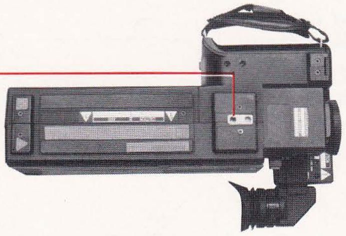
1. Electronic Viewfinder Rubber Eyecup
2. Electronic Viewfinder Focus Ring
3. Lens Cap
4. Manual Focus Ring
5. Macro Focus Release Button
6. Manual Zoom Control Lever
7. Indoor/Outdoor Switch
8. White Balance Preset/Auto Switch
9. Standby/Operate Switch
10. Camera/Playback/Cradle Switch
11. On/Off Power Switch
12. Control Panel (see detail)
13. Tape Compartment
14. Shoulder Strap
15. Connector Points for Shoulder Strap

RIGHT SIDE



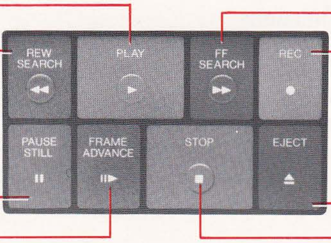
16. Earphone Jack
17. Cradle Connector Jack
18. External Microphone Jack
19. Record Review Button
20. Record/Pause Button
21. Hand-Grip Strap
22. Microphone
23. Electronic Viewfinder Locking Screw
24. Electronic Viewfinder Swivel Release Lever

BOTTOM



25. Tripod Socket

CONTROL PANEL (DETAIL)*

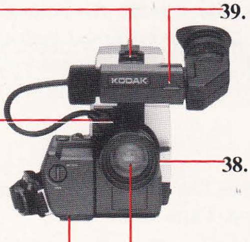


26. Play
27. Rewind/Search
28. Pause/Still
29. Frame Advance
30. Stop
31. Eject
32. Record
33. Fast Forward/Search

*Note: Camera/Playback/Cradle switch must be in "Playback" or "Cradle" position in order for control panel switches to function. "Eject" will function with Camera/Playback/Cradle switch in any position.

MODELS 2200 AND 2400 SHARE THESE FEATURES

FRONT



34. Accessory Shoe

39. Tally Light

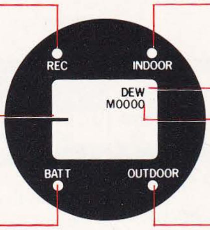
35. Electronic Viewfinder Connector

38. Lens Hood

36. Battery Compartment

37. 6:1 Zoom Lens

ELECTRONIC VIEWFINDER INDICATORS


REC
INDOOR
DEW
M0000
BATT
OUTDOOR

40. Record

46. Indoor

45. Dew

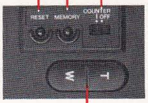
41. Illumination Level

44. Tape Counter

42. Battery

43. Outdoor

HAND-GRIP CONTROLS (DETAIL)


RESET
MEMORY
COUNTER
OFF
W
T

47. Memory Button

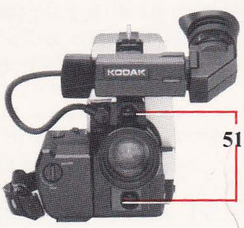
48. Reset Button

50. Counter/Off Switch

49. Power Zoom Control

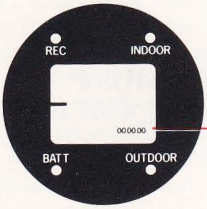
MODEL 2400 ONLY ADDS THESE FEATURES

FRONT



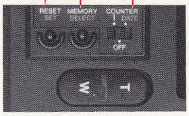
51. Infrared Sensors for Auto Focus

ELECTRONIC VIEWFINDER INDICATORS


REC
INDOOR
00.00.00
BATT
OUTDOOR

52. Date

HAND-GRIP CONTROLS (DETAIL)

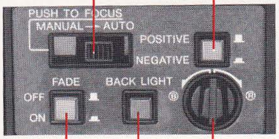

RESET
SET
MEMORY
SELECT
COUNTER
DATE
OFF
W
T

53. Memory/Select Button

54. Reset/Set Button

55. Counter/Off/Date Switch

SPECIAL FUNCTIONS PANEL (DETAIL)


PUSH TO FOCUS
MANUAL — AUTO
POSITIVE
NEGATIVE
FADE
BACK LIGHT
OFF
ON

56. Manual/ Auto-Focus Switch

60. Negative/ Positive Switch

57. Fade Off/On Switch

59. Manual Color Balance Control

58. Back Light Switch

LOCATION AND DESCRIPTION OF FEATURES

MODELS 2200 AND 2400

LEFT SIDE

1. **Electronic Viewfinder Rubber Eyecup.** Blocks extraneous light for bright viewfinder image. Easily adjusted for comfort and use of the right or left eye.
2. **Electonic Viewfinder Focus Ring.** Lets you focus viewfinder image.
3. **Lens Cap.** Protects lens during travel, storage, or when not in use.
4. **Manual Focus Ring.** Rotates clockwise or counterclockwise to focus lens.
5. **Macro Focus Release Button.** When green button is depressed and manual zoom control lever is pulled down, lets you focus as close as one inch.
6. **Manual Zoom Control Lever.** Allows manual control of zoom and macro focus.
7. **Indoor/Outdoor Switch.** Sets filtration for either daylight or tungsten illumination.
8. **White Balance Preset/Auto Switch.** In "Auto" position, automatically adjusts white balance on a continuous basis. For recording a sunset or other special effect scene, or when shooting a scene which is predominately red, green, or blue, set switch to "Preset."
9. **Standby/Operate Switch.** In "Standby" position, image will disappear from viewfinder, and indicator to left of switch will flash red. This position conserves battery power, but keeps the Newvicon tube heater and camera memory circuitry operable. When you're ready to start recording, return switch to "Operate" and the red indicator light will stay on. (Note: if left in the "Standby" mode for more than 5 minutes, the camera will automatically shut off.)
10. **Camera/Playback/Cradle Switch.** Place in "Camera" position to record, "Playback" position to play back through viewfinder, and "Cradle" position when camcorder is used with optional cradle, converter/charger, or VCR connector cable.
11. **On/Off Power Switch.** Turns power on and off.
12. **Control Panel.** Lets you control record and playback functions on the camcorder.
13. **Tape Compartment.** Opens for loading and removal of 8 mm video cassettes.
14. **Shoulder Strap.** Adjusts for comfortable carrying.
15. **Connector Points for Shoulder Strap.** Used for secure attachment of shoulder strap clips.

RIGHT SIDE

16. **Earphone Jack.** Accessory earphone (supplied) plugs in here to monitor sound while shooting or while playing back recordings through viewfinder.
17. **Cradle Connector Jack.** Connector jack for optional cradle, converter/charger, 10-metre cord, or VCR connector cable plugs in here.
18. **External Microphone Jack.** When an external microphone is plugged in here, the camcorder's built-in microphone is automatically disconnected.
19. **Record Review Button.** Push and release orange button once with thumb and camcorder will play back last 4 seconds of your recording through the electronic viewfinder then stop.
20. **Record/Pause Button.** Push and release gray button once with thumb and recording begins. Push and release again to stop recording.
21. **Hand-Grip Strap.** Adjustable for comfort and secure grip.
22. **Microphone.** Omnidirectional microphone records sound when you shoot video recordings.
23. **Electronic Viewfinder Locking Screw.** Used to secure viewfinder to camcorder and adjust position of viewfinder for comfortable use with right or left eye.
24. **Electronic Viewfinder Swivel Release Lever.** Unlocks by pulling back with finger in order to swivel viewfinder to front or right side of camcorder.

BOTTOM

25. **Tripod Socket.** Accepts standard tripod thread.

CONTROL PANEL (DETAIL)

26. **Play.** Push and release to play back a recording.
27. **Rewind/Search.** Push and release and tape will rewind until end of tape or until you push and release "Stop." In "Play" mode, push and hold to scan in reverse.
28. **Pause/Still.** When in "Record" mode, push and release once to pause; push and release again to resume recording. When in "Play," push and release once to view still frame; push and release again to resume playback.
29. **Frame Advance.** When in "Play" mode and viewing a still frame, push and hold to view one single frame after another. Push and release Pause/Still once to resume normal playback.
30. **Stop.** Push and release to stop recording, playback, fast forward, or rewind functions.
31. **Eject.** Push and release to insert or remove cassette from tape compartment.
32. **Record.** Push "Record" and "Play" at same time, then release, to begin recording.
    Note: this is for recording externally generated signals only (example: from a TV or another VCR, not for live camera recording). For camera recording, push and release #20, the gray Record/Pause button.
33. **Fast Forward/Search.** Push and release and tape will fast forward until end of tape or until you push and release "Stop." In "Play" mode, push and hold to scan forward.

FRONT

34. Accessory Shoe. For mounting auxiliary light, microphone, etc.

35. Electronic Viewfinder Connector. Plugs into camcorder to activate viewfinder.

36. Battery Compartment. Holds 8-volt KODAVISION Battery.

37. 6:1 Zoom Lens. Has range of wide angle (7 mm) to telephoto (42 mm) and maximum aperture of f/1.2.

38. Lens Hood. Shields camera lens and accepts lens cap.

39. Tally Light. Flashes red to tell subject you are recording.

ELECTRONIC VIEWFINDER INDICATORS

40. Record. Green light over "REC" means you are recording.

41. Illumination Level. White bar indicates relative light level in scene.

42. Battery. Red light under "BATT" will flash to warn you that battery is nearly discharged.

43. Outdoor. Orange light under "OUTDOOR" means Indoor/Outdoor Switch (#7) is set for "OUTDOOR."

44. Tape Counter. When "Counter" switch (#50—Model 2200; #55—Model 2400) is on, tape counter helps you monitor amount of tape used. "M" indicates memory feature is operating. (See #47.)

45. Dew. When condensation or high humidity is a problem, "DEW," in white letters, will flash in upper-right corner of viewfinder and 10 seconds later camcorder will unload tape and turn off to prevent damage. (Note: Condensation is likely to occur when your camcorder is taken from a cool or cold environment to a warmer one. If this happens, allow the temperature of your camcorder to stabilize before operating. Under conditions of extreme high humidity, condensation may not disappear and service may be needed.)

46. Indoor. Orange light over "INDOOR" means Indoor/Outdoor Switch (#7) is set for "INDOOR."

HAND-GRIP CONTROLS (DETAIL)

47. Memory Button. Push and release once to engage memory feature. Push and release again to disengage.

48. Reset Button. Push and release to reset tape counter to "0000."

49. Power Zoom Control. A fingertip touch on "T" (telephoto) or "W" (wide angle) controls the motorized power zoom.

50. Counter/Off Switch. Set at "Counter" and tape counter numbers appear in viewfinder.

MODEL 2400 ONLY

FRONT

51. Infrared Sensors For Auto Focus. Infrared beams focus camera automatically when "Manual/Auto Focus" switch (#56) is set to "Auto."

ELECTRONIC VIEWFINDER INDICATORS

52. Date. When switch (#55) is set to "Date," day, month, and year will appear in viewfinder and in recording. See page 21 for procedure.

HAND-GRIP CONTROLS (DETAIL)

53. Memory/Select Button. Push and release to engage and disengage memory feature. Also used to "select" date settings. See pages 20–21 for procedure.

54. Reset/Set Button. Push and release to reset tape counter to "0000." Also used to "set" date. See pages 20–21 for procedure.

55. Counter/Off/Date Switch. Functions same as #50, with added feature of date set.

SPECIAL FUNCTIONS PANEL (DETAIL)

56. Manual/Auto Focus Switch. When set to "Auto," camcorder automatically adjusts focus. When set to "Manual," lets you use manual focus ring (#4) to focus.

57. Fade Off/On Switch. When depressed, provides a 3-second fade-in and fade-out when starting or stopping recording.

58. Back Light Switch. When depressed, lets you improve subject exposure in backlighted scenes.

59. Manual Color Balance Control. When White Balance Preset/Auto switch is in "Preset" position, lets you adjust blue (b) and red (r) hues to give either colder or warmer tones for special effects.

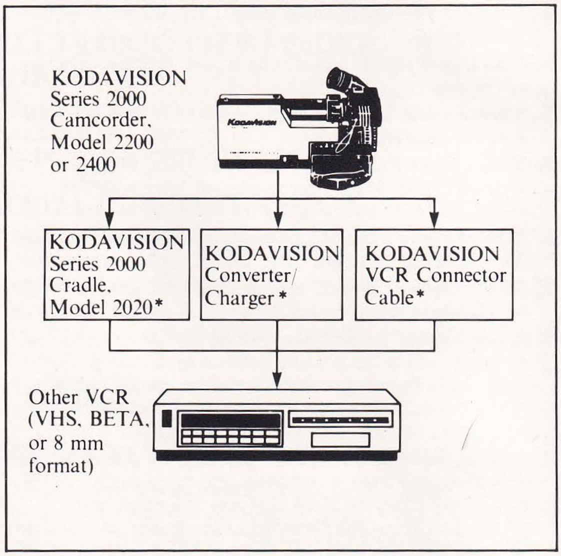
60. Negative/Positive Switch. When depressed, records scene as a negative and displays negative image in viewfinder. Useful for special effects and to view or record photographic negatives as positive images using optional negative/positive adapter. "Positive" setting is used for normal camera operation and to view or record slides using optional negative/positive adapter.

ALL YOU CAN DO WITH YOUR CAMCORDER

MODELS 2200 AND 2400

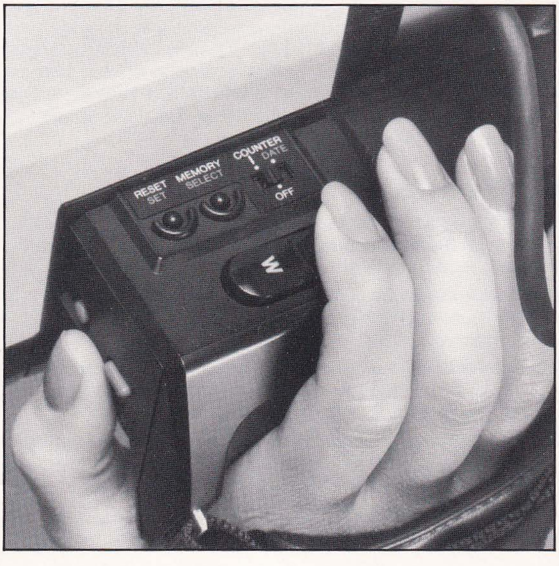
- **Shoot video sound recordings with a single, portable unit. See pages 12–15.**

- **Record *from* or play back *to* another VCR (VHS, BETA, or 8 mm format). See pages 36–37.**


KODAVISION Series 2000 Camcorder, Model 2200 or 2400
KODAVISION Series 2000 Cradle, Model 2020*
KODAVISION Converter/ Charger*
KODAVISION VCR Connector Cable*
Other VCR (VHS, BETA, or 8 mm format)

- **Play back your video recordings on your home TV. (Note: requires use of optional cradle or converter/ charger.) See pages 18–19.**

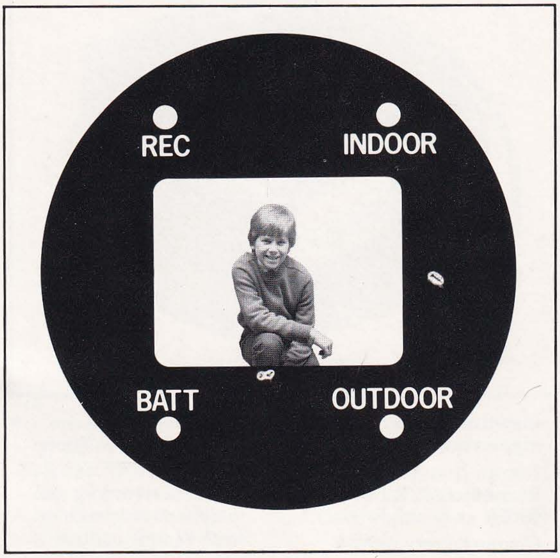
- **Control record start/stop, record review, and power zoom lens with one hand.**


RESET SET
MEMORY SELECT
COUNTER
DATE
OFF
W

- **Record TV programs off the air. (Note: requires use of optional cradle and tuner/timer module.) See pages 18–19.**

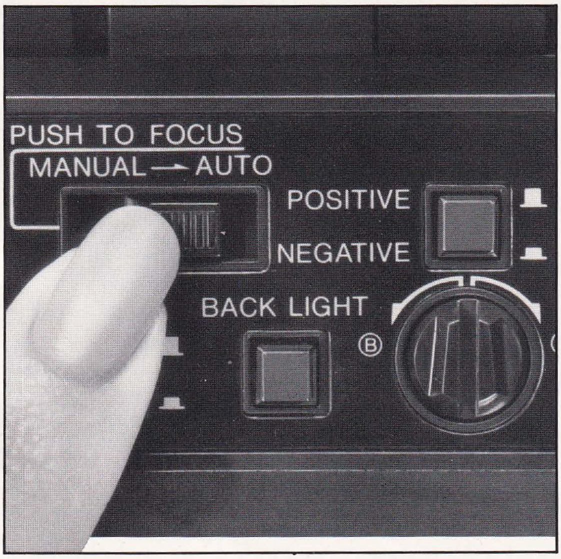
ON
PM
1 2
WED
2:00
CH
TIMER
ON-OFF
SELECT
SET
OTR
5

- **Play back your video recordings through the camcorder viewfinder. See pages 16–17.**

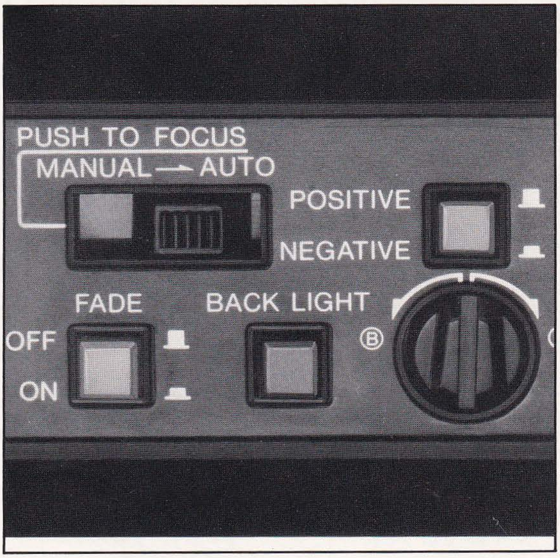

REC
INDOOR
BATT
OUTDOOR

MODEL 2400 ONLY

- **Focus automatically or manually. See page 27.**

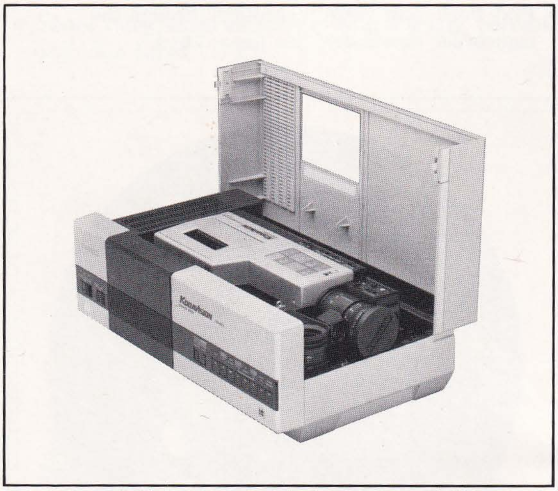

PUSH TO FOCUS
MANUAL → AUTO
POSITIVE
NEGATIVE
BACK LIGHT
B

- **Use many specialized recording controls. See pages 24–25.**


PUSH TO FOCUS
MANUAL → AUTO
POSITIVE
NEGATIVE
FADE
OFF
ON
BACK LIGHT
B

OPTIONAL ACCESSORIES FOR YOUR CAMCORDER

- **The KODAVISION Series 2000 Cradle, Model 2020 lets you . . .**



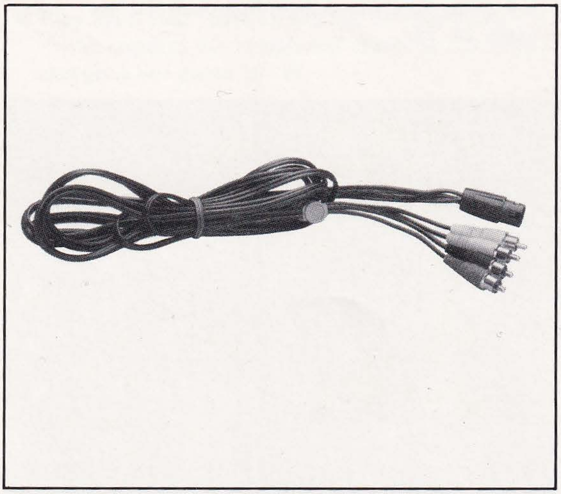
- Play back video recordings on home TV.
- Record *from* or play back *to* another VCR (VHS, BETA, or 8 mm format).
- Charge battery in camcorder, plus charge another battery.
- Install optional KODAVISION Tuner/Timer Module.
- Control recording and playback on cradle or with remote control.
- Store camcorder securely and attractively.

- **The KODAVISION Series 2000 Tuner/Timer, Model 2022 lets you . . .**

KODAVISION

- Record TV programs off the air.
- Record a program while watching the same program.
- Record a program while watching another program.
- Set timer to record one or two events over a two-week period or even every day.

- **The KODAVISION VCR Connector Cable lets you . . .**



- Play back *to* or record *from* home TV equipped with video and audio input and output jacks.
- Play back *to* or record *from* another VCR (VHS, BETA, or 8 mm format).
- Note: When using this accessory, camcorder is powered by its internal battery.

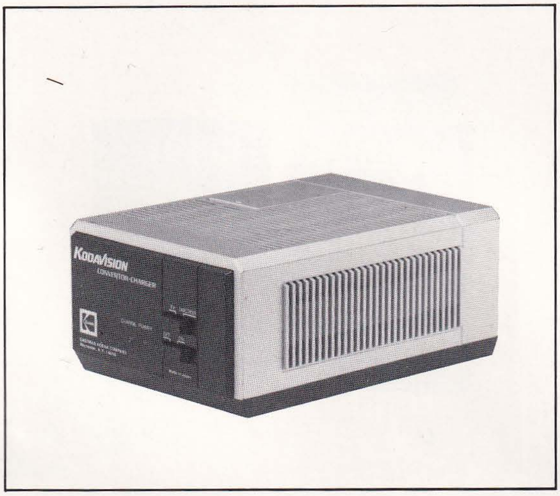
- **KODAVISION Batteries . . .**

KODAVISION
BATTERY
KV100
8V, 1Ah
CAT. NO.
128 0700
CODE NO.
Kodak

- Provide battery power to the camcorder.
- Are easily recharged using cradle or converter/charger.

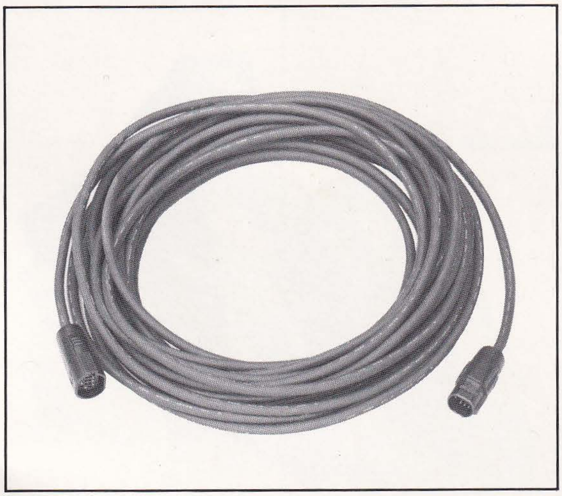
CAUTION: TO PREVENT FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

- **The KODAVISION Converter/Charger lets you . . .**



- Play back video recordings on home TV.
- Record *from* or play back *to* another VCR (VHS, BETA, or 8 mm format).
- Charge battery in camcorder, plus charge another battery.
- Operate camcorder on AC rather than battery power.

- **The 10-Metre Cable lets you . . .**

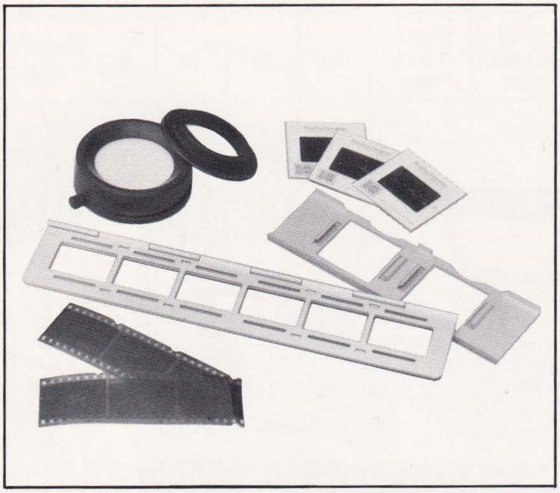


- Connect camcorder to cradle or converter/charger so you can view live scenes on TV or monitor scenes while shooting. (The 10-metre cable is included with cradle and converter/charger.)
- Operate camcorder on AC rather than battery power.

- **The KODAVISION Camcorder Carry Case . . .**

- Holds camcorder, extra video cassettes, batteries, adapter cord(s), converter/charger, etc.
- Lets you carry with handles or adjustable shoulder strap.
- Is constructed of rugged nylon with large exterior pocket, two interior pockets, and strong nylon zippers.

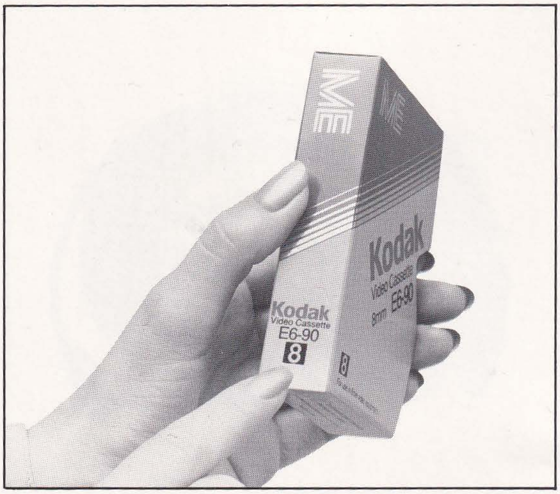
- **The KODAVISION Negative/Positive Adapter lets you . . .**



- View and record color slide images with camcorder Model 2200.
- View and record color slide images, and also record photographic negatives as positive images using the negative/positive switch on camcorder Model 2400.
- Make your own slide/negative presentations with sound.

ABOUT 8 mm *KODAK* VIDEO CASSETTES FOR YOUR CAMCORDER

- **8 mm, the only tape format for use in your camcorder.**


ME
Kodak
Video Cassette
8mm E6-90
8

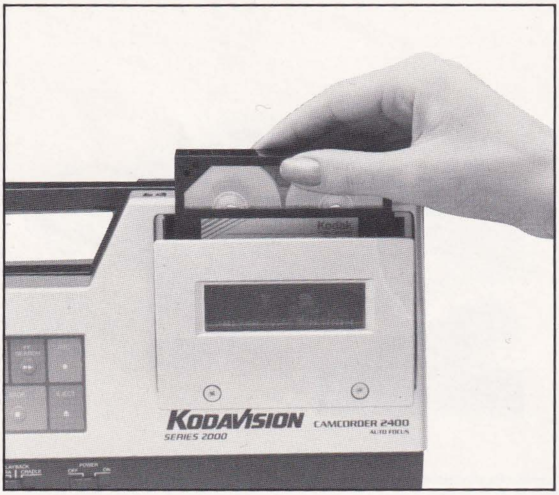
- Use only tapes having the "8" symbol as shown here.

- **Available in two coating types, ME and MP.**

ME
Kodak
Video Cassette
8mm E6-90
MP
Kodak
Video Cassette
8mm P6-90
8

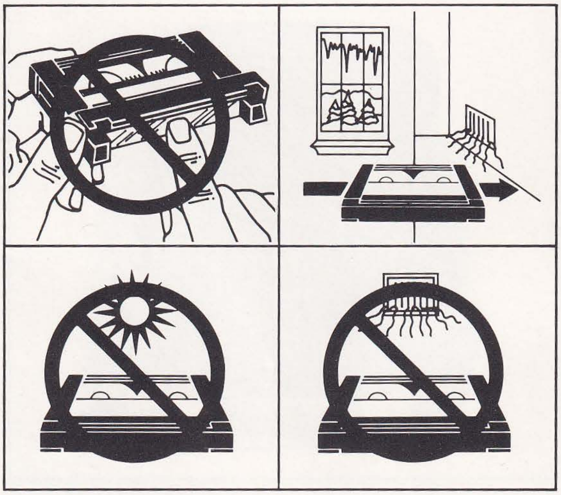
- Kodak's 8 mm ME video cassettes have a metal-evaporated (ME) coating for highly advanced performance characteristics to capture subtle audio/video nuances in precise detail.
- Kodak's 8 mm MP video cassettes use advanced metal-particle (MP) coating for excellent density and sensitivity.

- **Always insert correctly.**


KODAVISION
SERIES 2000
CAMCORDER 2400
AUTO FOCUS

- Insert video cassette as shown here.

- **Use care in handling.**



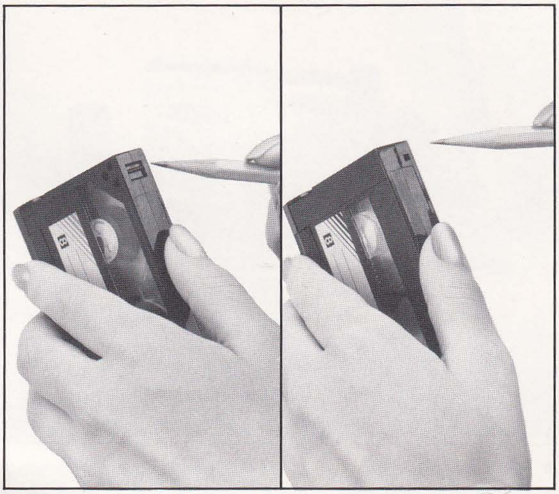
- Never open the cassette lid to handle the tape directly.
- If cassette is brought from a cold to a warm area, allow it to warm to room temperature (for about 2 hours) before using.
- Do not subject cassette to bright sunlight or high heat.

- **Available in three lengths: 30, 60, and 90 minutes.**

ME
Kodak
Video Cassette
8mm E6-90
8

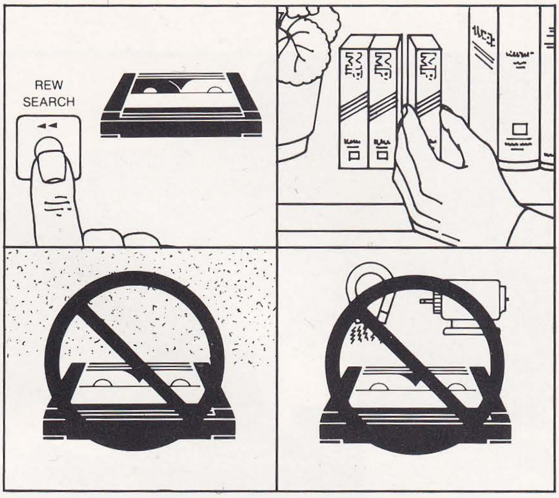
- Kodak's 8 mm ME and MP video cassettes are currently available in three lengths for recordings of 30, 60, and 90 minutes.
- The availability of 8 mm Kodak video cassettes in a 120-minute length will be announced in the near future.

- **Easy to prevent accidental erasure.**



- Your 8 mm video cassette may have one of the erasure prevention switches shown here.
- To prevent accidental erasure of an important recording, move the switch (using fingertip or pencil point) at the corner of the cassette so that red shows in the indent.
- To use the cassette for recording, move the switch so black shows in the indent.

- **Store properly.**



- Always rewind cassette before storing.
- Avoid dusty or dirty places.
- Store cassette vertically in its case.
- Keep away from strong magnetic fields (magnets, motors, transformers, etc)

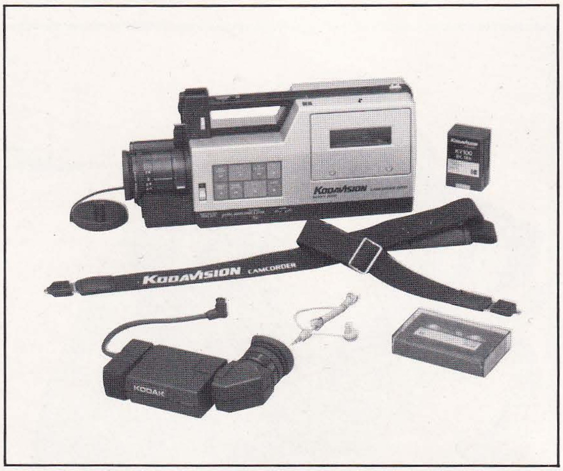
- **Use this handy tape counter/elapsed time chart.**

TAPE SIZE	30	60	90	120	TIME RECORDED	TIME REMAINING
WHEN COUNTER READS						

- For each type and length of tape you use, start with the tape completely rewound and counter set at 0000.
- Then use chart to keep track of the approximate time recorded and time remaining on your tape at various counter readings.

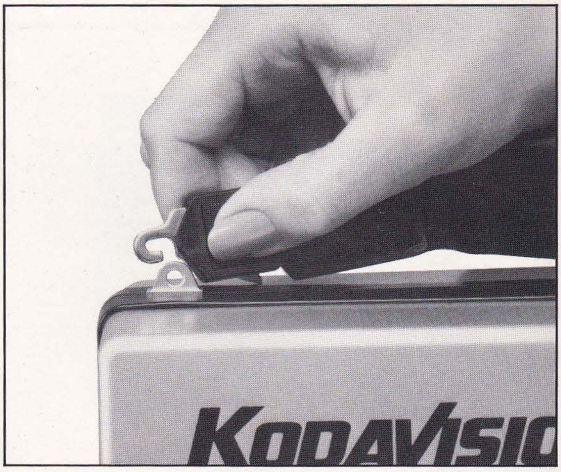
HOW TO SET UP YOUR CAMCORDER FOR FIRST-TIME USE

1. Unpack and check contents of carton.



- Locate and identify these separate items: camcorder, electronic viewfinder, battery, cassette tape, earphone, and shoulder strap.
- The lens hood and lens cap should already be attached to the camcorder.
- Retain packing material and carton for future shipping if necessary.

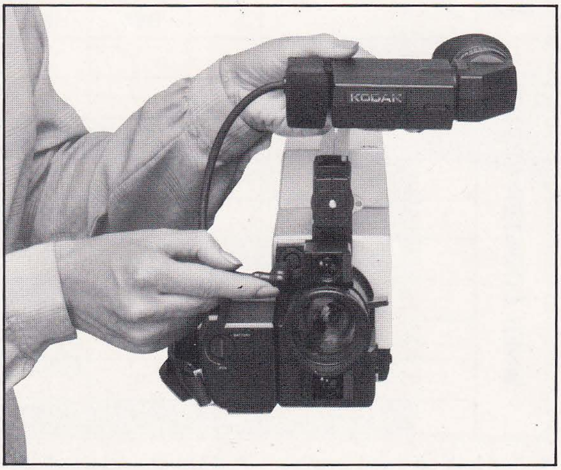
2. Connect the shoulder strap.



- Press latch with thumb and forefinger and pull back as shown to open latch and expose hook.
- Hook both ends of strap to connector points on camcorder.

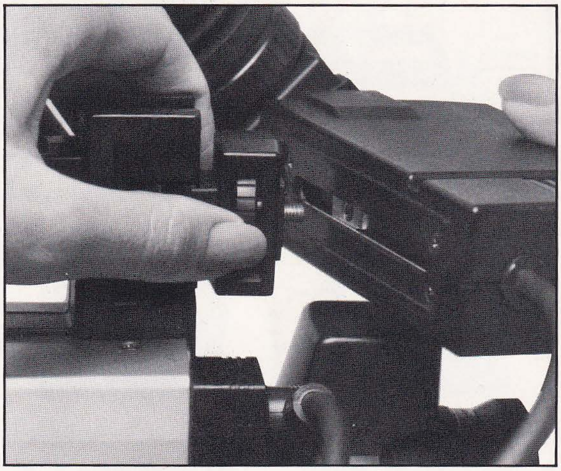
---

5. Plug in electronic viewfinder connector.



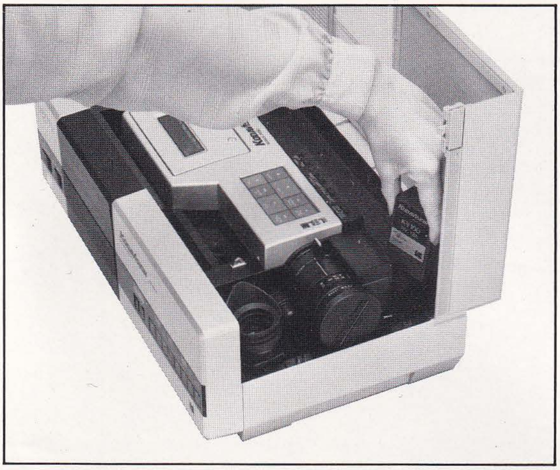
- Connector plugs into front of camcorder by aligning keyway on connector with slot in outlet.

6. Connect viewfinder to camcorder.



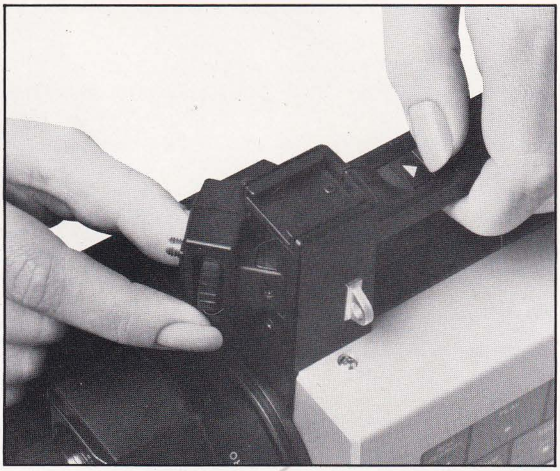
- Position as shown.
- Align thread of electronic viewfinder locking screw with metal nut in viewfinder housing and turn locking screw clockwise until secure.
- The viewfinder can be adjusted for viewing with left or right eye.

3. Charge battery.



- Battery may have some charge when you unpack it, but it is best to charge fully before using.
- To charge battery, you must use either the optional KODAVISION Cradle or Converter/ Charger. See charging instructions with those accessories, and do not attempt to charge a KODAVISION Battery with any other device.

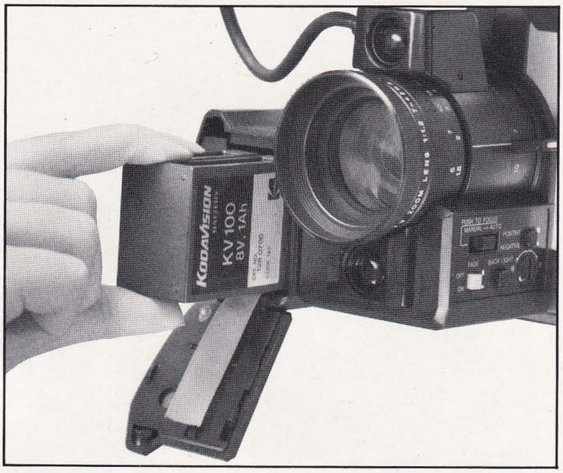
4. Move viewfinder swivel to front position.



- To move, pull back viewfinder swivel release lever with finger and turn swivel to front position.

THEN, EITHER DO THIS . . .

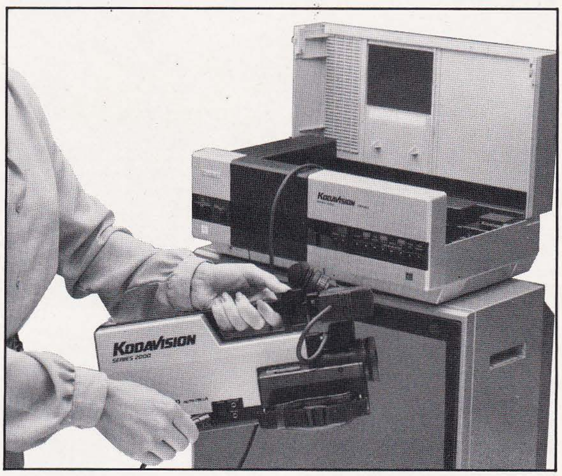
7. Open battery compartment door and insert battery.



- Open the door by turning the latch in the direction of the arrow.
- Insert a charged battery with the groove facing up and the KODAVISION label to the right.
- Pull orange ribbon to remove battery easily.

OR . . .

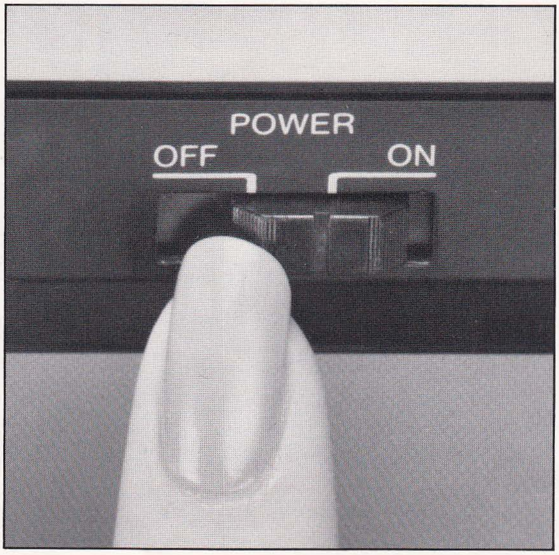
8. Connect 10-metre cable between camcorder and optional cradle or converter/charger.



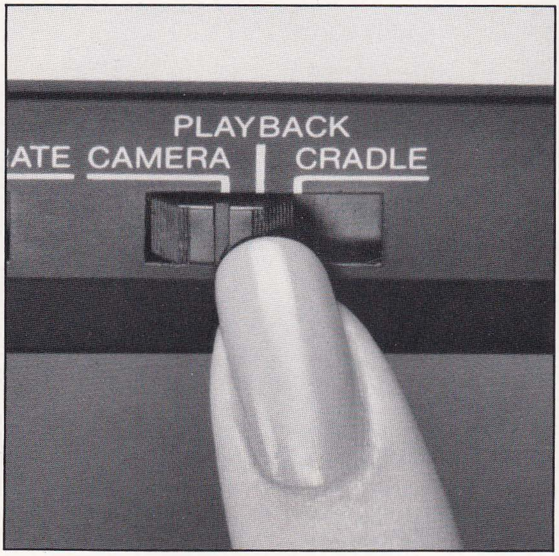
- A 10-metre cable is provided with the optional cradle or converter/ charger.
- When connected between the camcorder and optional converter/ charger or cradle, power is supplied for camcorder operation.

HOW TO SHOOT A TEST RECORDING WITH YOUR CAMCORDER

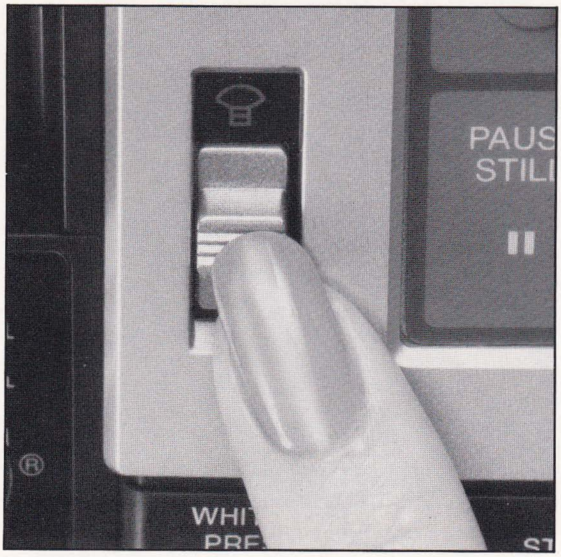
1. Set power switch to "On."


POWER
OFF
ON

2. Set Camera/Playback/Cradle switch to "Camera."


PLAYBACK
ATE
CAMERA
CRADLE

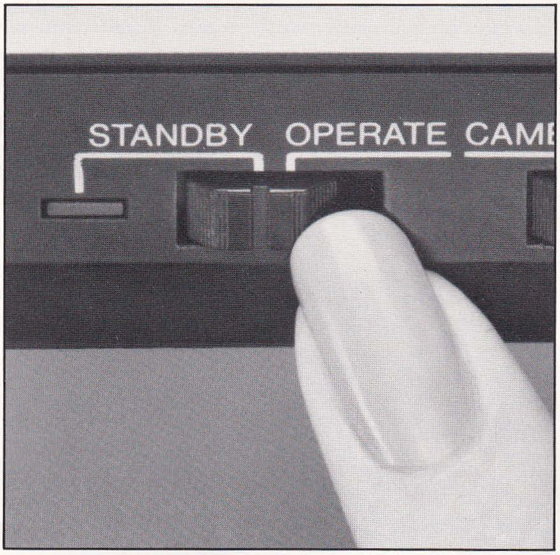
5. Set Indoor/Outdoor Switch to proper position.


PAUS
STILL
WHI
PRE

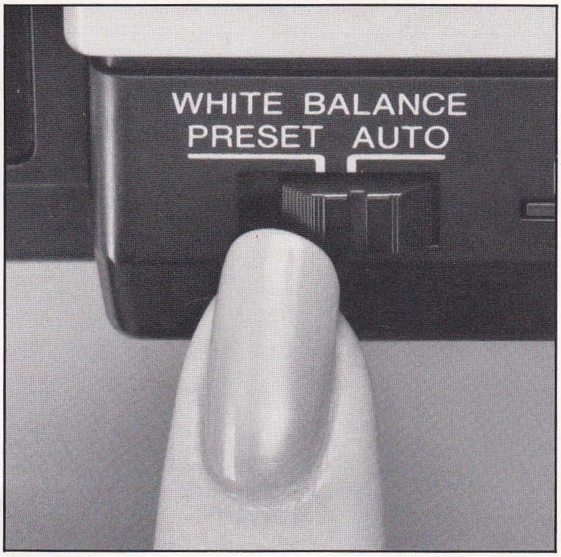
6. Remove lens cap.

KODAVISION
CAMCORDER
ZOOM LENS 1:1.2

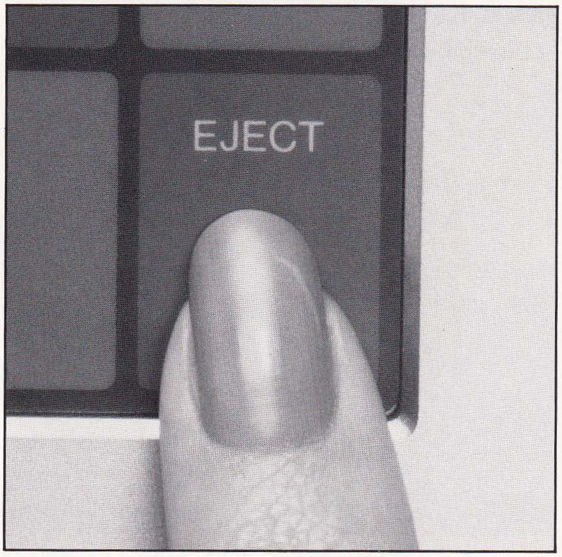
3. Set Standby/Operate switch to "Standby."


STANDBY
OPERATE
CAM

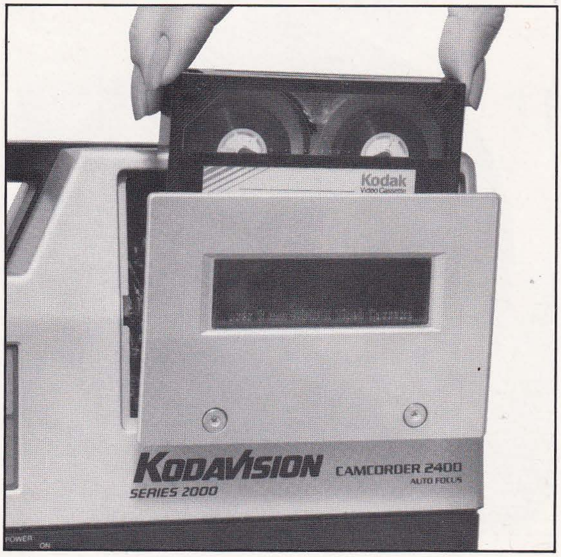
4. Set White Balance Preset/Auto switch to "Auto."


WHITE BALANCE
PRESET
AUTO

7. Push Eject button.



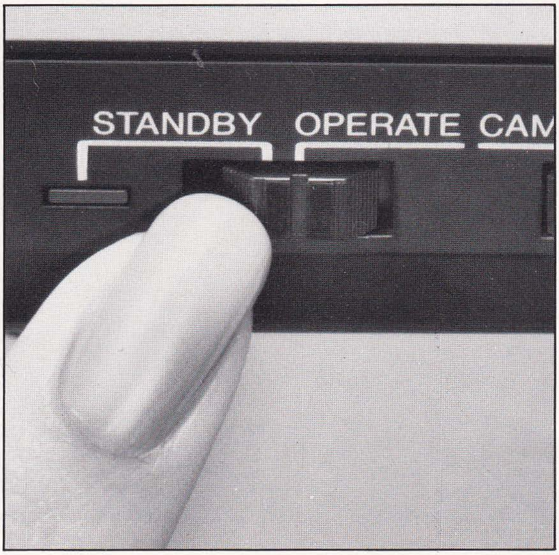
8. Insert cassette and close door. Tape will load and thread in a few seconds.


Kodak
KODAVISION
SERIES 2000
CAMCORDER 2400
AUTO FOCUS

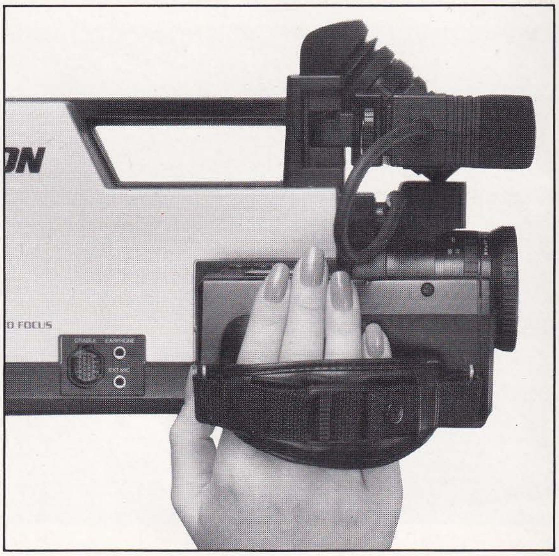
CONTINUED . . .

HOW TO SHOOT A TEST RECORDING, CONTINUED

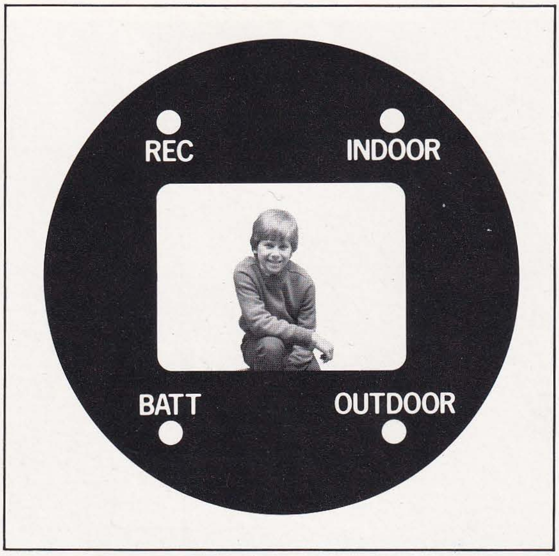
9. Set Standby/Operate switch to "Operate."


STANDBY
OPERATE
CAM

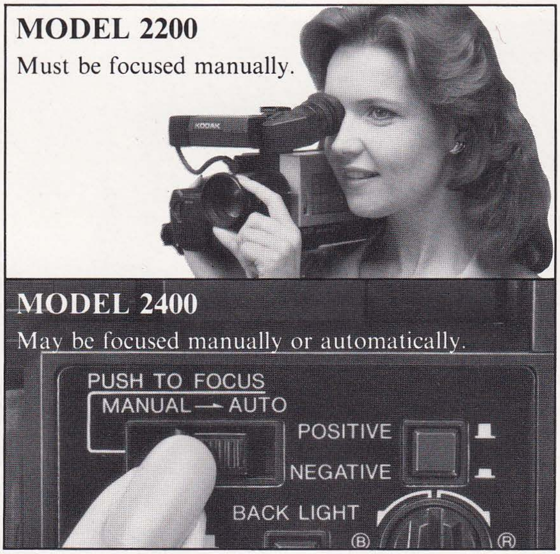
10. Place right hand through strap and grasp hand grip.



13. Look through viewfinder and select subject to be recorded.


REC
INDOOR
BATT
OUTDOOR

14. Focus lens for subject to be recorded.



MODEL 2200

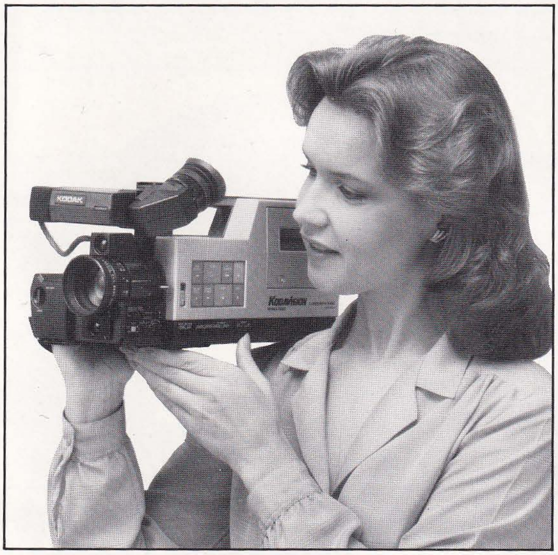
Must be focused manually.

MODEL 2400

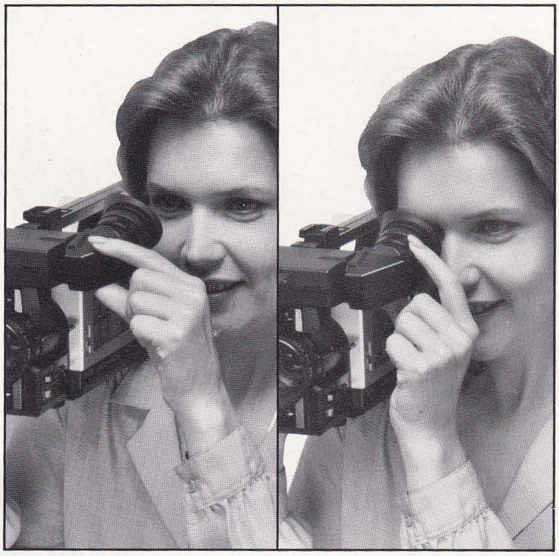
May be focused manually or automatically.

PUSH TO FOCUS
MANUAL → AUTO
POSITIVE
NEGATIVE
BACK LIGHT
B
R

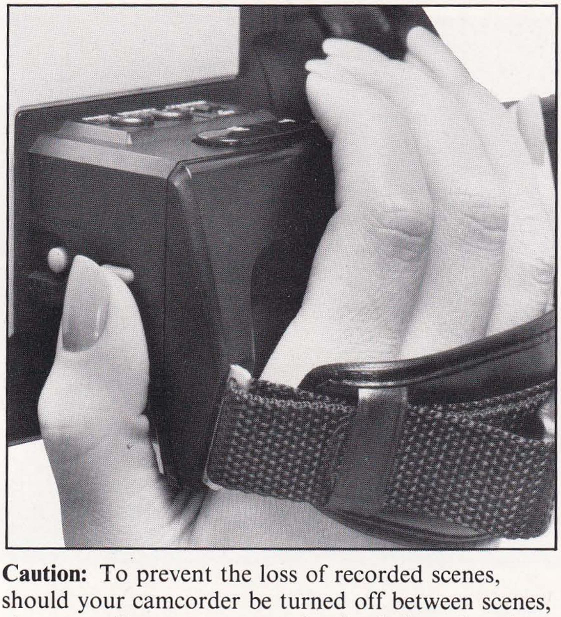
11. Place camcorder on right shoulder.



12. Adjust eyepiece position and focus on white bar inside viewfinder by turning knurled ring.

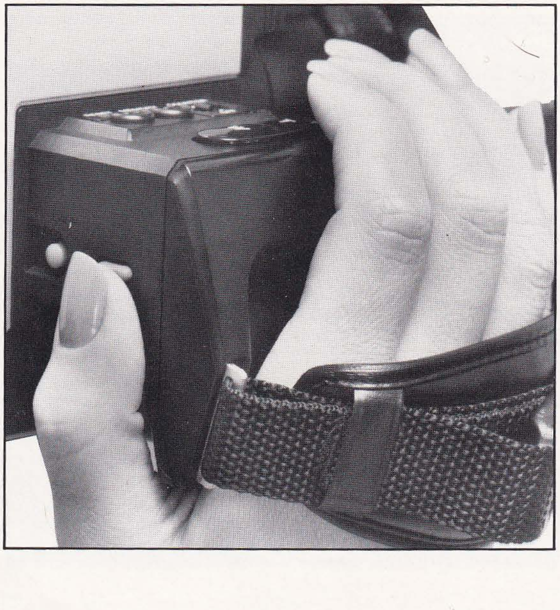


15. Push and release gray Record/Pause button to begin recording.



Caution: To prevent the loss of recorded scenes, should your camcorder be turned off between scenes, always confirm your tape end point before shooting again.

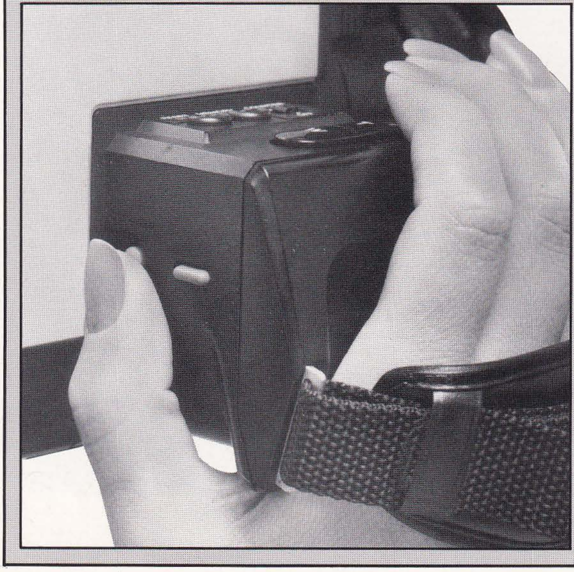
16. Push and release gray Record/Pause button again to stop recording.



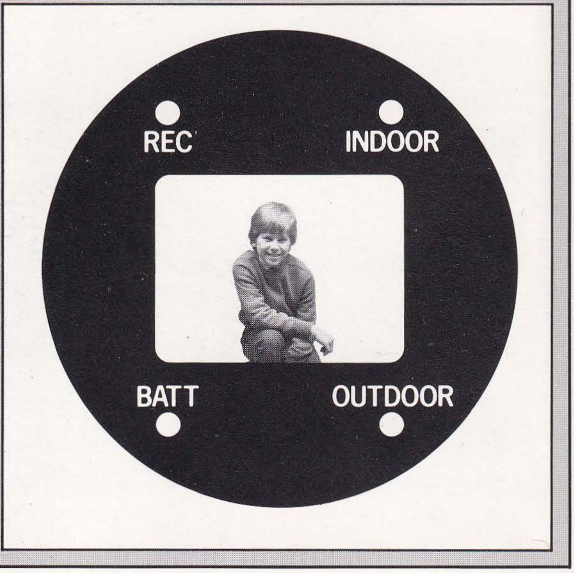
HOW TO PLAY BACK A RECORDING THROUGH CAMCORDER VIEWFINDER

FOR QUICK CONFIRMATION OF RECORDING, DO THIS:

Push and release orange Record Review button . . .

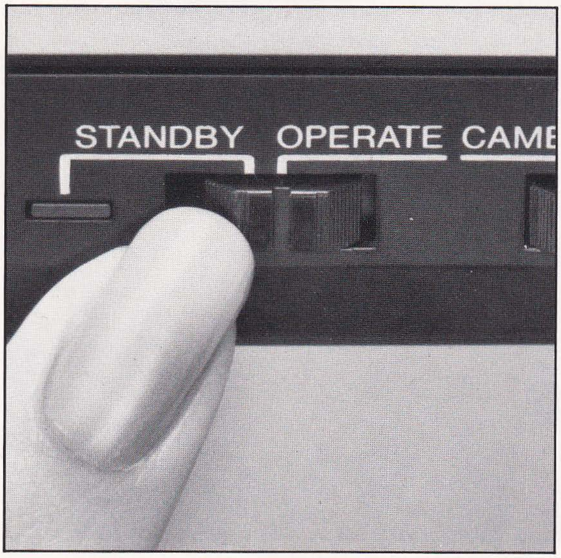


And the last 4 seconds of your recording will play then stop automatically.


REC
INDOOR
BATT
OUTDOOR

---

3. Set Standby/Operate switch to "Operate."

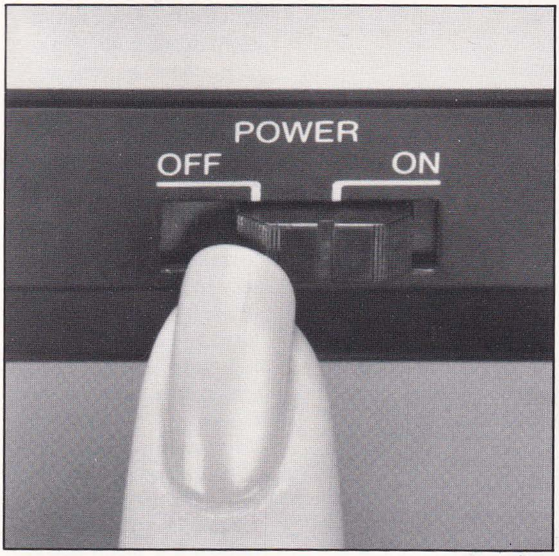

STANDBY
OPERATE
CAM

4. Push and release Rewind/Search button to rewind cassette.

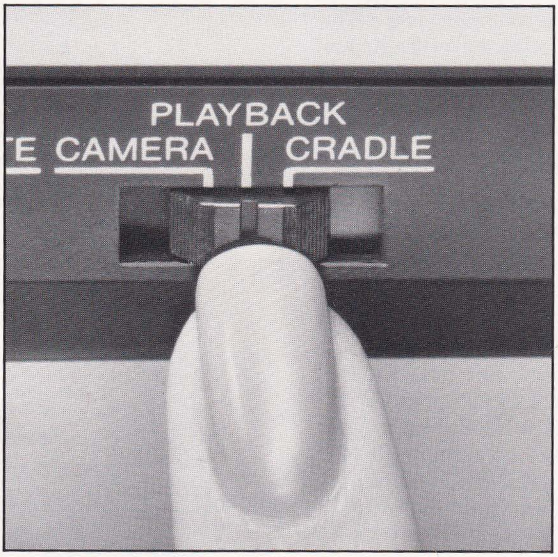
(NOTE: THESE PLAYBACK STEPS FOLLOW LOGICALLY THE RECORDING STEPS DESCRIBED ON PAGES 12–15.)

TO PLAY BACK MORE THAN THE LAST 4 SECONDS, DO THIS:

1. Set Power switch to "On."

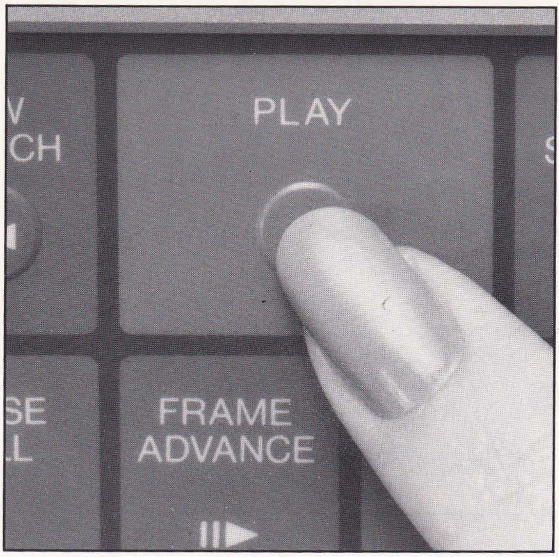

POWER
OFF
ON

2. Set Camera/Playback/Cradle switch to "Playback."


PLAYBACK
E CAMERA
CRADLE

---

5. Push and release Play button and recording will play in viewfinder.


PLAY
FRAME ADVANCE

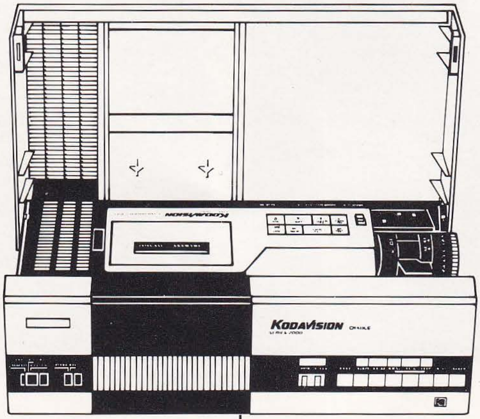
6. Plug earphone in Earphone Jack and hear recorded sound while viewing playback. Push Stop button to end playback.

HOW TO PLAY BACK A RECORDING ON YOUR TELEVISION SET

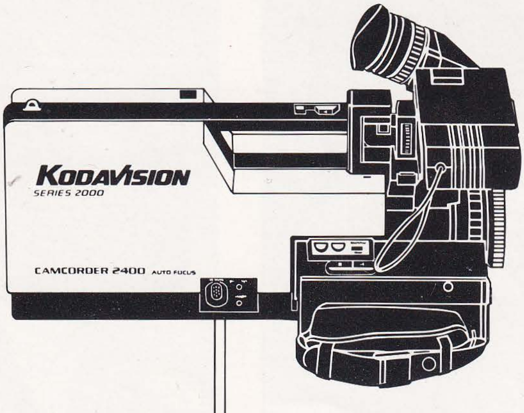
In order to play back a recording on your television set, you must use any one of three optional accessories *in addition to* your camcorder. The optional accessories are:

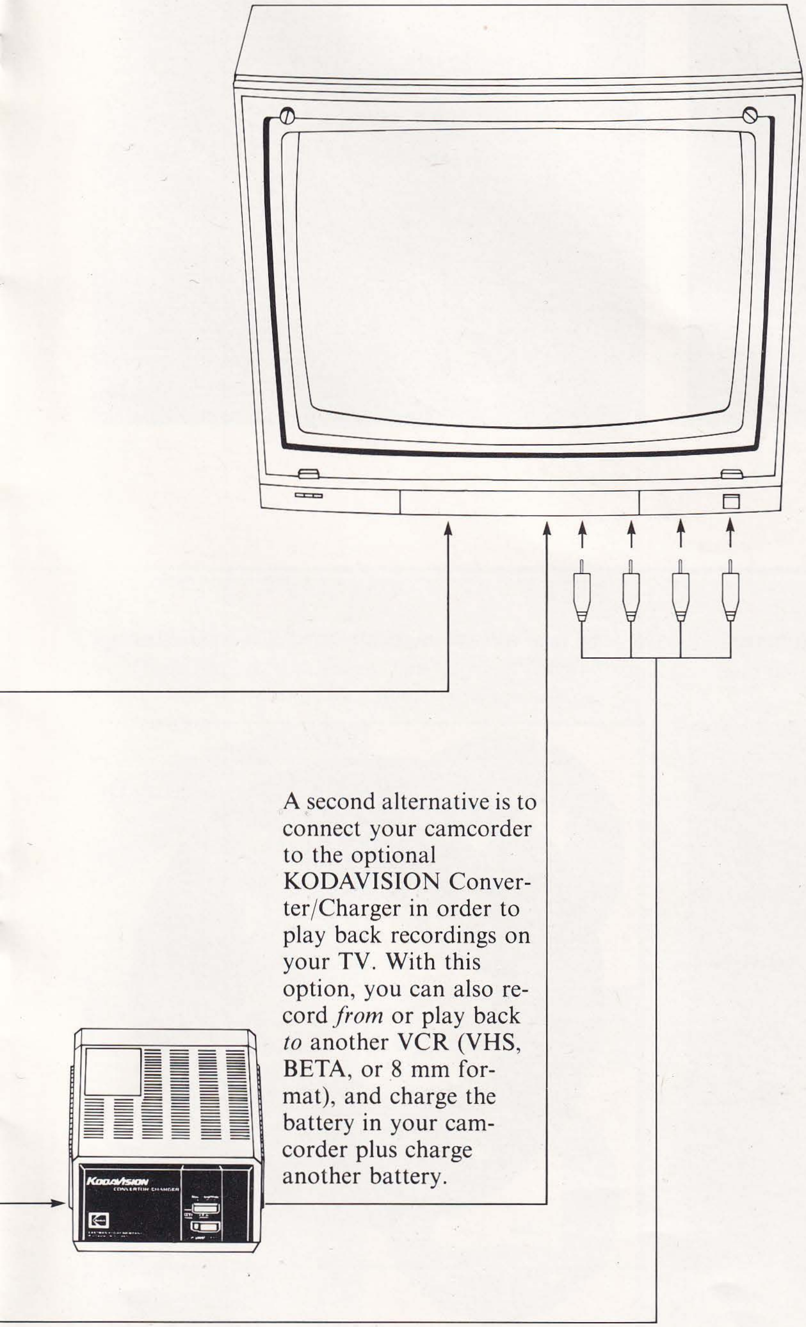
- The KODAVISION Series 2000 Cradle, Model 2020
- The KODAVISION Converter/Charger *or*
- The KODAVISION VCR Connector Cable.

To operate, your camcorder must be hooked up to any one of these accessories, which is in turn hooked up to your television set or VCR (VHS, BETA, or 8 mm format).



As shown here, your camcorder fits inside the optional KODAVISION Series 2000 Cradle, Model 2020. This provides attractive, convenient storage for your camcorder, as well as a means for playing back recordings on your home TV. The cradle also lets you record *from* or play back *to* another VCR (VHS, BETA, or 8 mm format); charge the battery in your camcorder plus charge another battery; and control recording and playback by using the cradle's controls or with a remote control (supplied). In addition, by adding the optional tuner/timer module, you can also record TV programs off the air, or set the timer to record one or two events over a two-week period.





A second alternative is to connect your camcorder to the optional KODAVISION Converter/Charger in order to play back recordings on your TV. With this option, you can also record *from* or play back *to* another VCR (VHS, BETA, or 8 mm format), and charge the battery in your camcorder plus charge another battery.

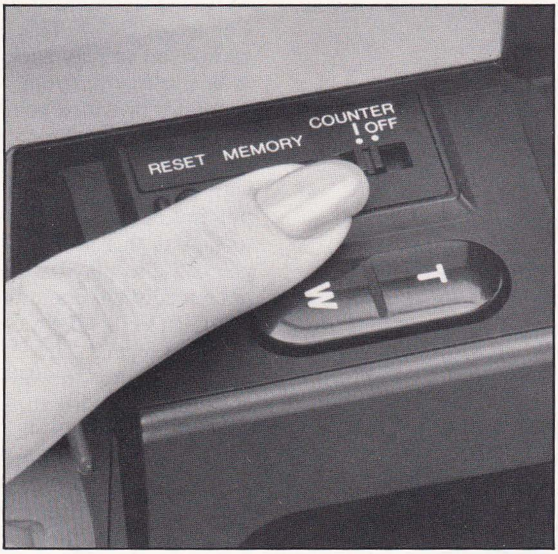
A third alternative is to connect your camcorder to the optional KODAVISION VCR Connector Cable. This allows you to play back *to* or record *from* your home TV provided your television set is a "monitor-type" TV equipped with video and audio input and output connectors. With this accessory, you can also play back *to* or record *from* another VCR (VHS, BETA, or 8 mm format). It should be noted, however, that when using the VCR Connector Cable with a TV or VCR, the camcorder is powered by its own internal battery. This means that the maximum recording or playback time with a fully charged battery will be approximately one hour.

FOR MORE INFORMATION

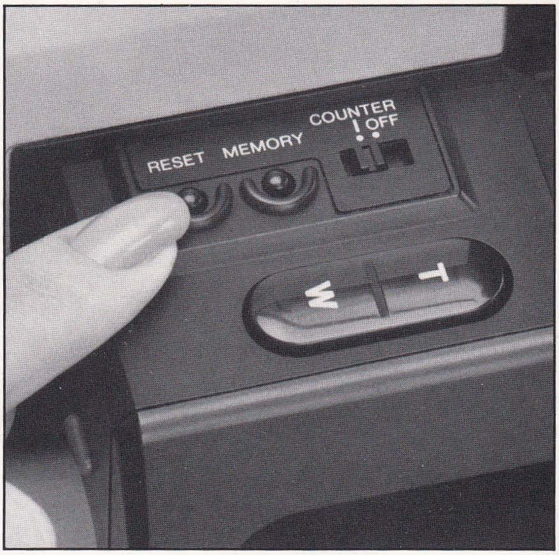
For advice on the best combination of optional accessory equipment for your particular situation, contact your dealer.

HOW TO USE THE DIGITAL COUNTER AND THE MEMORY FEATURE

1. Set Counter switch to "Counter" and view digital counter readout in viewfinder.

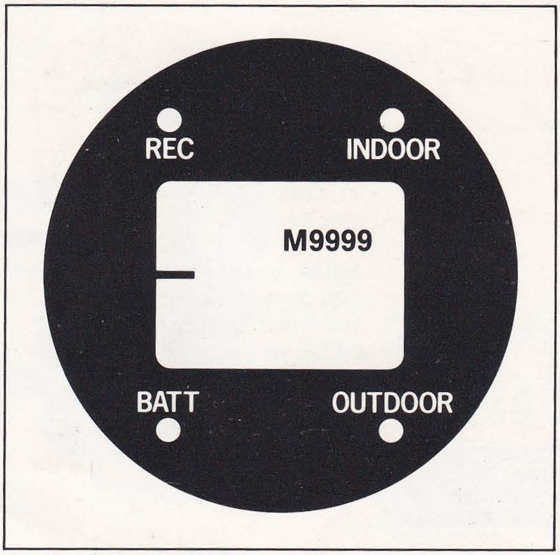

RESET
MEMORY
COUNTER
OFF
W
T

2. Push and release Reset button and digital counter will read "0000."

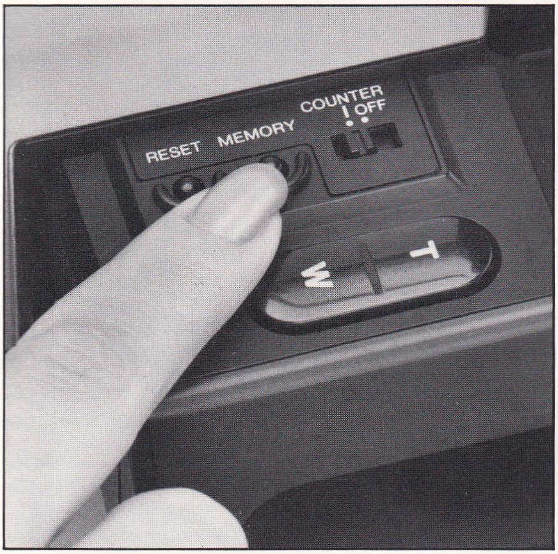

RESET
MEMORY
COUNTER
OFF
W
T

5. Then push and release the Rewind/Search button while in Cradle or Playback mode.

6. The tape will automatically rewind to approximately "M9999."


REC
INDOOR
M9999
BATT
OUTDOOR

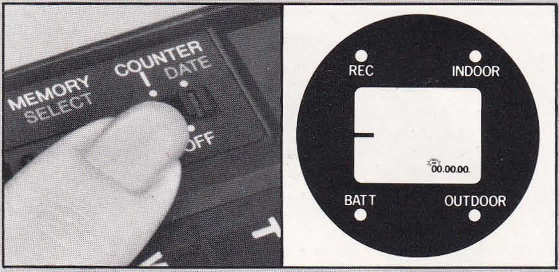
3. To use memory feature, push and release Memory button and an "M" will appear in the viewfinder. Now make your recording.


RESET
MEMORY
COUNTER
OFF
W
T

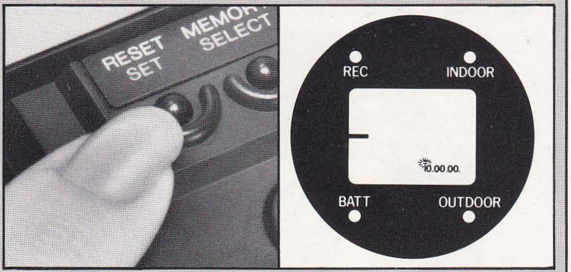
4. After recording, push and release gray Record/Pause button to stop recording.

MODEL 2400 ONLY—TO USE DATE SET FEATURE:

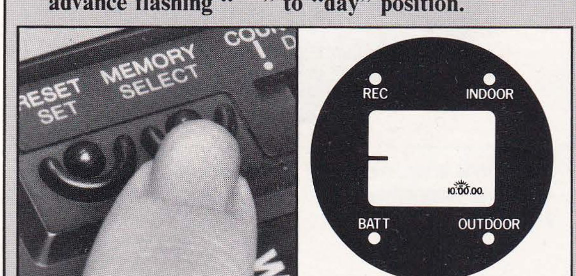
1. Set Counter/Off/Date switch to "Date" and view "00-00-00" in viewfinder. The flashing "‾" indicates position of the number you are setting.


MEMORY
SELECT
COUNTER
DATE
OFF
T
REC
INDOOR
00.00.00
BATT
OUTDOOR

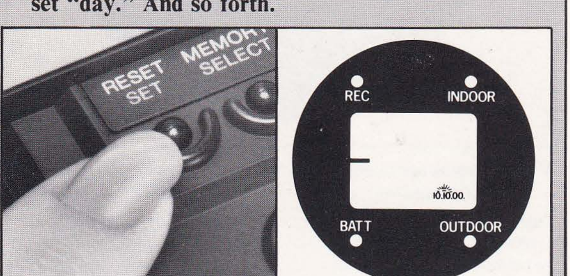
2. Push Reset/Set button and release as necessary to set "month."


RESET
SET
MEMORY
SELECT
REC
INDOOR
10.00.00
BATT
OUTDOOR

3. Push and release Memory/Select button again to advance flashing "‾" to "day" position.

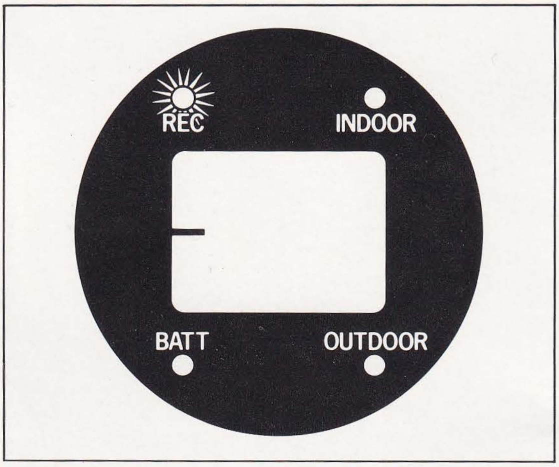

RESET
SET
MEMORY
SELECT
W
REC
INDOOR
10.00.00
BATT
OUTDOOR

4. Push and release Reset/Set button as necessary to set "day." And so forth.


RESET
SET
MEMORY
SELECT
REC
INDOOR
10.10.00
BATT
OUTDOOR

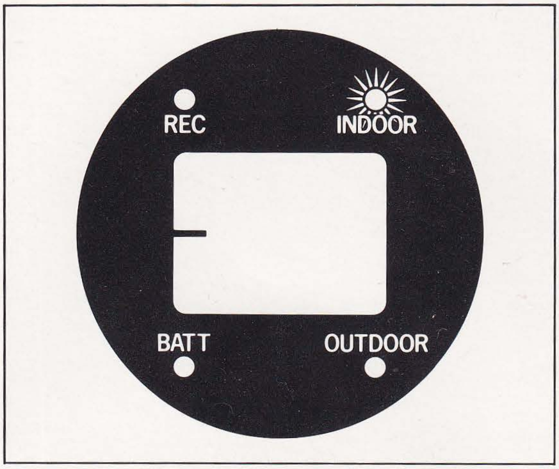
HOW TO READ THE ELECTRONIC VIEWFINDER INDICATORS

- **When the green light over "REC" is on it means you are recording.**


REC
INDOOR
BATT
OUTDOOR

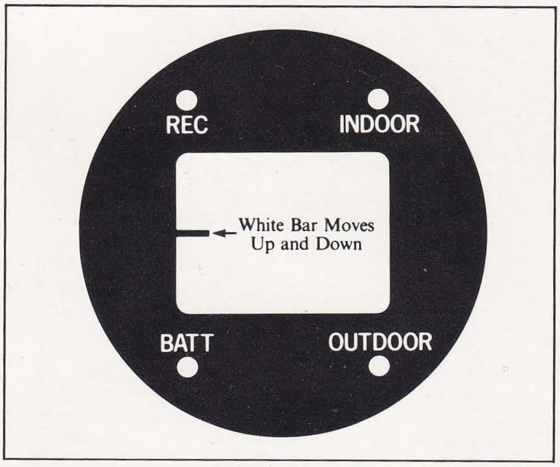
- Note: more than one light or indicator may appear in the viewfinder when the camcorder is in use.

- **When orange light over "INDOOR" is on it means Indoor/Outdoor switch is set for "Indoor," or tungsten, illumination.**


REC
INDOOR
BATT
OUTDOOR

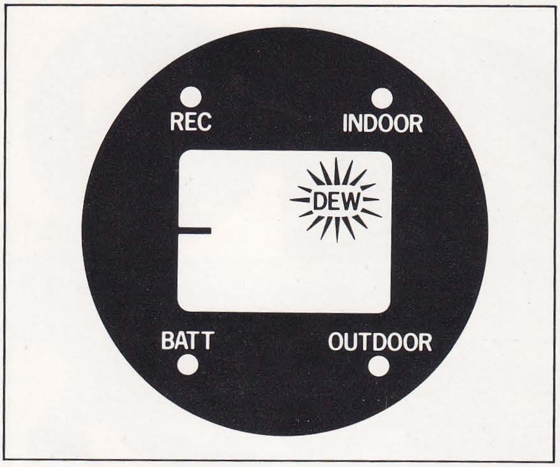
- If this setting is incorrect, or if you move outdoors with the camcorder, set the Indoor/Outdoor switch to "Outdoor."

- **The white bar indicates the relative light level in the scene.**


REC
INDOOR
White Bar Moves Up and Down
BATT
OUTDOOR

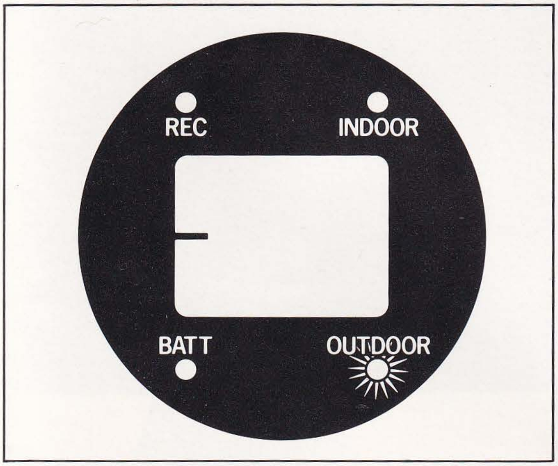
- Bar moves up to indicate more illumination, and down to show less illumination. Center position indicates normal exposure.

- **When condensation is a problem, "DEW," in white letters, will flash in upper right.**


REC
INDOOR
DEW
BATT
OUTDOOR

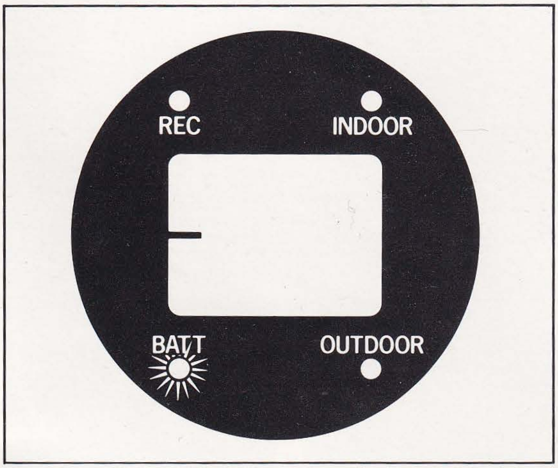
- 10 seconds after "DEW" appears, camcorder will automatically shut off.
- See page 3a, #45 for further explanation of this situation.

- **When orange light under "OUTDOOR" is on it means Indoor/Outdoor switch is set for "Outdoor," or sunlight, illumination.**



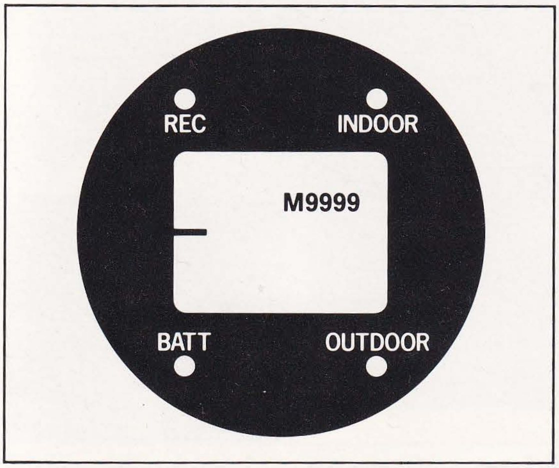
- If this setting is incorrect, or if you move indoors with the camcorder, set the Indoor/ Outdoor switch to "Indoor."

- **The red light under "BATT" will flash 3 to 7 minutes before battery is discharged.**



- When battery is fully discharged, camcorder will automatically shut off.
- When this happens, you must recharge the battery. See page 11 for procedure.
- If you have a spare battery that is fully charged, insert it into camcorder and continue use.

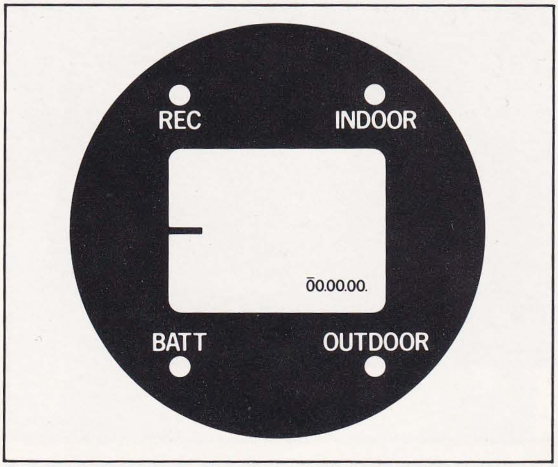
- **Tape counter helps you monitor amount of tape used. "M" indicates memory feature is operating.**



- See pages 20–21 for information on using the digital counter and memory feature.
- See page 9 for handy tape counter/elapsed time chart.

MODEL 2400 ONLY

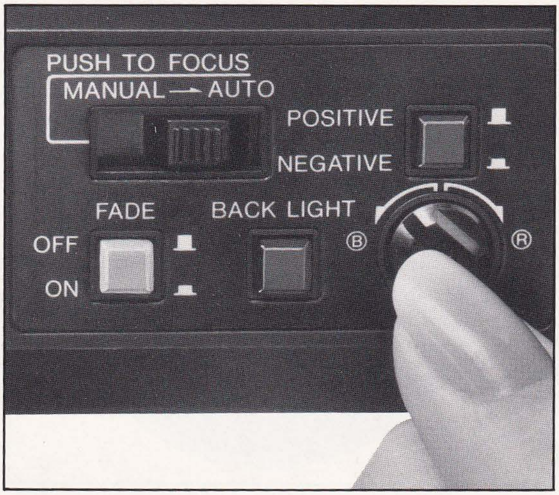
- **When Counter/Off/Date switch is set to "Date," the date will appear in viewfinder and in your recordings.**



- See page 21 for information on date feature.
- Remember, when you see the date in your viewfinder, it will also appear on any recordings you make.
- If you do not want the date to appear in your recording, set switch to "Off" or "Counter."

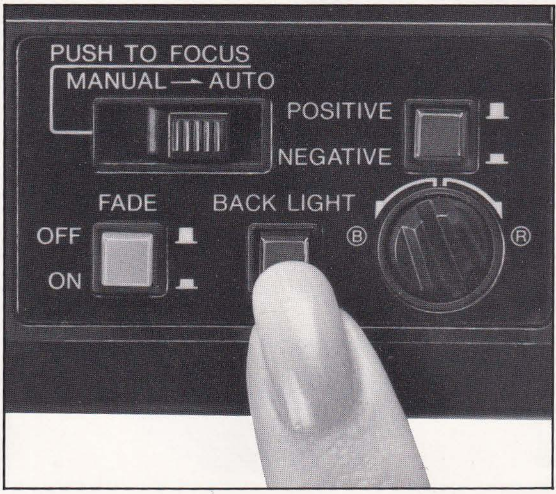
HOW TO USE THE MODEL 2400 RECORDING CONTROLS

- **Manual color balance control lets you adjust blue and red hues when recording.**


PUSH TO FOCUS
MANUAL → AUTO
POSITIVE
NEGATIVE
FADE
BACK LIGHT
OFF
ON
Ⓑ
Ⓡ

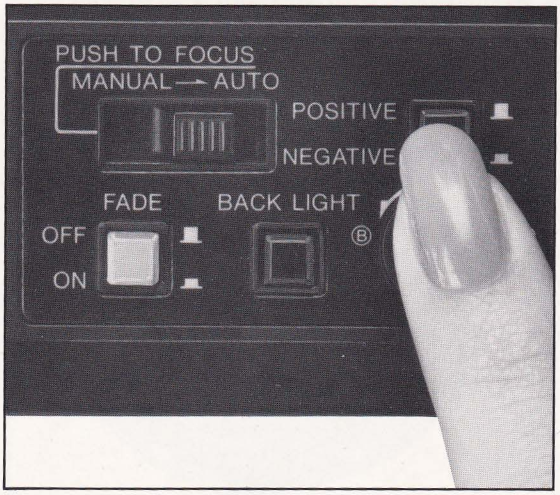
- This control is useful when you have a scene which is predominately red, green, or blue, or when recording a sunset or other special effects scene.
- Works when White Balance Preset/Auto switch is set to "Preset," and camcorder is connected to a TV so you can monitor color as you make adjustments. (Note: This control works only when recording. It has no effect on color during playback.)

- **Backlight switch helps you adjust camcorder to compensate for backlighted (silhouetted) subjects.**


PUSH TO FOCUS
MANUAL → AUTO
POSITIVE
NEGATIVE
FADE
BACK LIGHT
OFF
ON
Ⓑ
Ⓡ

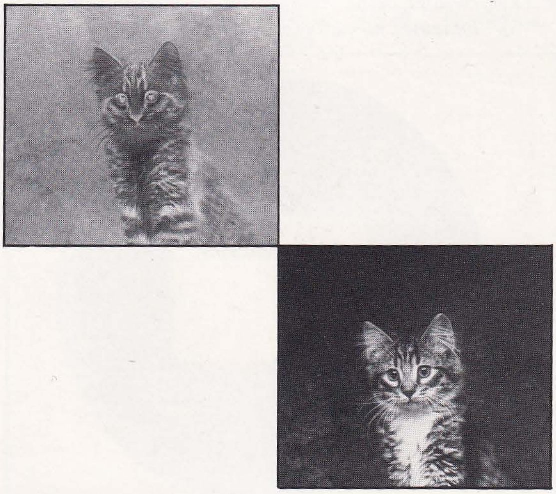
- Your camcorder has an automatic iris control that controls the iris opening based on the amount of light in the scene.
- When Backlight switch is "On," the iris opens approximately 1.5 stops to compensate for backlighting.

- **When shooting "Normal" video recordings, Negative/Positive button should be set to "Positive."**


PUSH TO FOCUS
MANUAL → AUTO
POSITIVE
NEGATIVE
FADE
BACK LIGHT
OFF
ON
Ⓑ

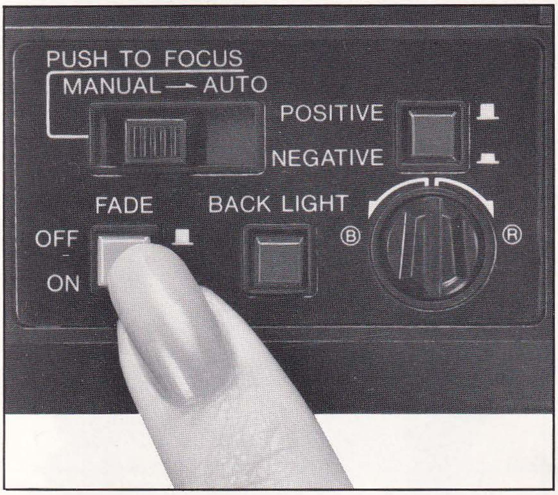
- In this position, you will see a positive image in the viewfinder.
- Use this setting with optional KODAVISION Negative/Positive Adapter when recording color slides. See page 7 for more information.

- **When Negative/Positive button is depressed, camcorder will record scene as a negative.**



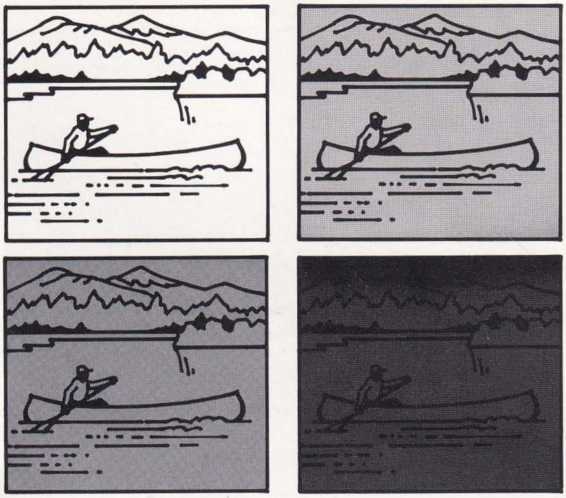
- In this position, you will see a negative image in the viewfinder.
- Use this setting with optional KODAVISION Negative/Positive Adapter to record photographic negatives as positive images. See page 7 for more information.

- **With Fade button "Off," scene beginnings and endings will be abrupt.**


PUSH TO FOCUS
MANUAL → AUTO
POSITIVE
NEGATIVE
FADE
BACK LIGHT
OFF
ON
Ⓑ
Ⓡ

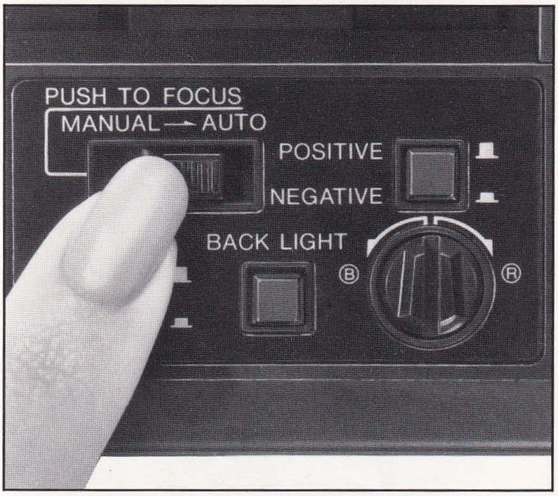
- There are times when you may prefer this type of scene transition. See pages 36 and 37, "Editing in Camera," for more information.

- **With Fade button "On," scene beginnings will gradually fade in and endings will gradually fade out.**



- When "On," provides 3-second fade in or out when recording.
- There are times when you may prefer this type of scene transition. See pages 36 and 37, "Editing in Camera," for more information.

- **When switched to "Auto," camcorder automatically focuses lens.**


PUSH TO FOCUS
MANUAL → AUTO
POSITIVE
NEGATIVE
BACK LIGHT
Ⓑ
Ⓡ

- Model 2400 uses infrared beams to focus camera lens automatically on subject in center of viewfinder.
- See pages 26 and 27 for more information on focusing.

- **When switched to "Manual," you can focus the lens yourself.**

- Grasp lens barrel as shown above and turn clockwise and/or counterclockwise to focus manually.
- It is best to zoom the lens all the way in (to full telephoto position), focus, then adust zoom for desired scene.
- See pages 26 and 27 for more information on focusing.

HOW TO USE THE FOCUS CONTROLS ON YOUR CAMCORDER

MODELS 2200 AND 2400

• Manual Focusing

Model 2200 must be focused manually, but Model 2400 may be focused either manually *or* automatically. The manual focusing procedure described here applies to both models.

To focus your camcorder manually, use this procedure:

1. First, be sure that the electronic viewfinder image is focused. See page 15, step #12 for illustration of this procedure.
2. While looking through the viewfinder, aim the camcorder at the scene you wish to record.
3. Using the Power Zoom Control *or* the Manual Zoom Control lever, zoom the lens all the way in to the full telephoto (or "T") position.
4. Grasp the lens barrel as shown at right and turn it clockwise and/or counterclockwise until the viewfinder scene is in focus.
5. Zoom back to the lens position you wish to use for recording. The camcorder lens should remain in focus over the entire zoom lens range (from wide angle to telephoto).

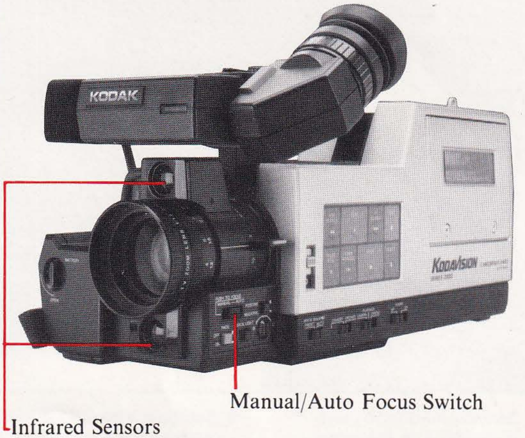
MODEL 2400 ONLY

• Automatic Focusing

The KODAVISION Series 2000 Camcorder, Model 2400, features automatic focusing. When the Manual/Auto Focus switch is set to "Auto," the camcorder transmits an invisible infrared beam. This infrared beam is reflected from the subject back to the camcorder where an electronic circuit "reads" the distance and a tiny motor automatically focuses the lens for that distance.

To use the automatic focusing feature, follow these steps:

1. Set the Manual/Auto Focus switch to "Auto."
2. Look through the viewfinder and frame the subject you want to record. The camcorder lens will automatically focus on the subject in the *center* of the viewfinder.
3. If you wish to zoom in or zoom out while in the auto-focus mode, the camcorder will continue to adjust the focus automatically as necessary.



Manual/Auto Focus Switch

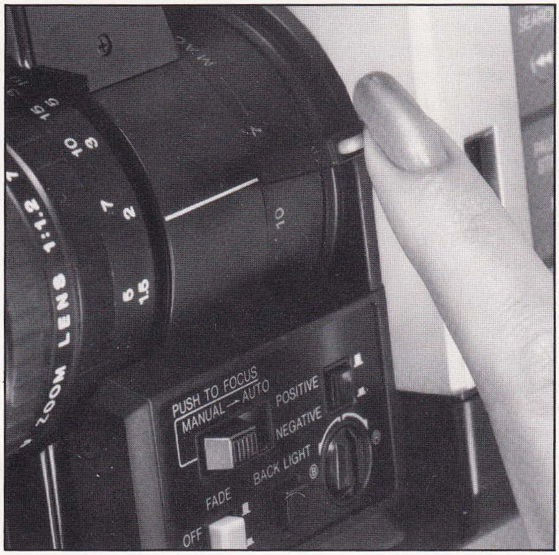
Infrared Sensors for Auto Focus

• Macro Focusing

Models 2200 and 2400 both feature macro focusing. This feature lets you focus on subjects as close as 1 inch from the lens, so you can fill the screen even when shooting small subjects such as flowers, details of artwork, etc.

To use macro focusing, follow these steps:

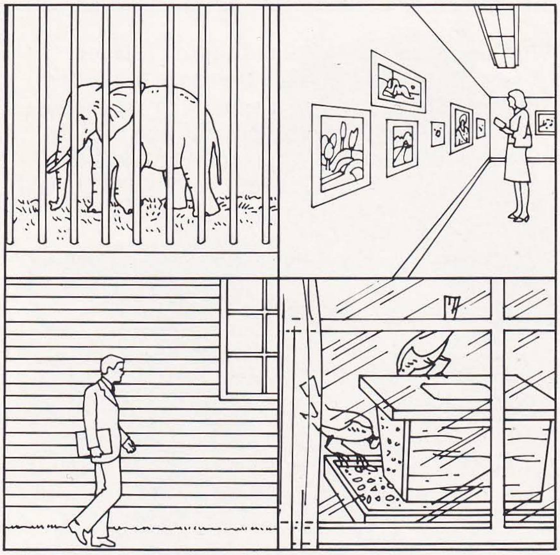
1. Push and hold the green Macro Focus Release Button; then pull the Manual Zoom Control lever down into the macro focus range. Release the green button.
2. Be sure the light level on the subject is appropriate for close-up shooting. Note: on Model 2400, set Manual/Auto switch to "Manual" to use macro focus.
3. Use the Manual Zoom Control lever to focus the camcorder lens. (Note: when using the macro-focus feature, it may be helpful to steady the camcorder by mounting it to a tripod.)



• When to Use Automatic Focusing:

- When your subject is large enough to fill 75% of the viewfinder image when the zoom lens is in the maximum telephoto ("T") position.

• When *Not* to Use Automatic Focusing:



- When scene has far and near objects, extreme perspective, a fine horizontal pattern, or a non-reflective object (i.e.: shooting through a window).

HOW TO USE THE ZOOM LENS CONTROLS ON YOUR CAMCORDER

MODELS 2200 AND 2400

• Advantages of Zooming

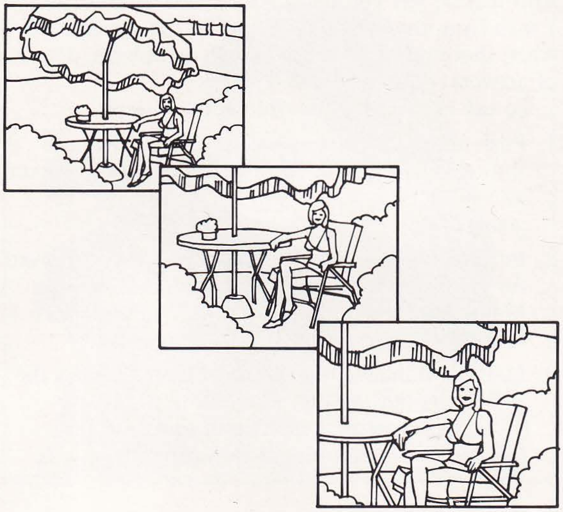
Your camcorder is equipped with a 6:1 power zoom lens with a range of wide angle (7 mm) to telephoto (42 mm) and a maximum aperture of f/1.2. The zoom lens can be operated manually, using the Manual Zoom Control Lever, on the right side of the lens barrel (when lens is facing you). Or, it can be operated with the Power Zoom Control, on the top of the hand grip. Advantages of zooming include:

- Gives you a complete range of lenses—wide-angle, normal, telephoto, and everything in between.
- No need to change lenses when going from wide angle to normal, normal to telephoto, and so forth.
- Lets you frame or "crop" subjects the way you want simply by adjusting zoom.

In order to remain in focus while zooming, always remember to:

1. Zoom in to the full telephoto (or "T") position.
2. Focus the lens.
3. The camcorder lens should now remain in focus over the entire zoom lens range.

- **Zoom in (from wide angle to telephoto) when you want to start with the general scene and end with emphasis on a specific subject.**



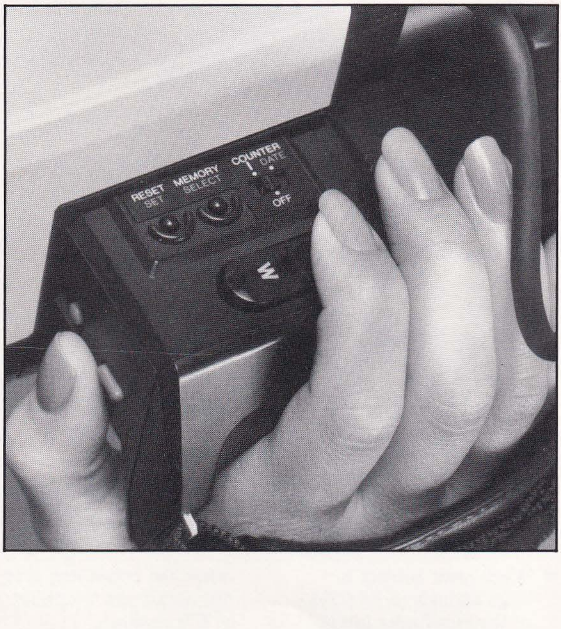
• When to use the Power Zoom Control

When using the Power Zoom Control, it takes 7.5 seconds to move through the entire zoom-lens range (from wide angle to telephoto, or vice versa).

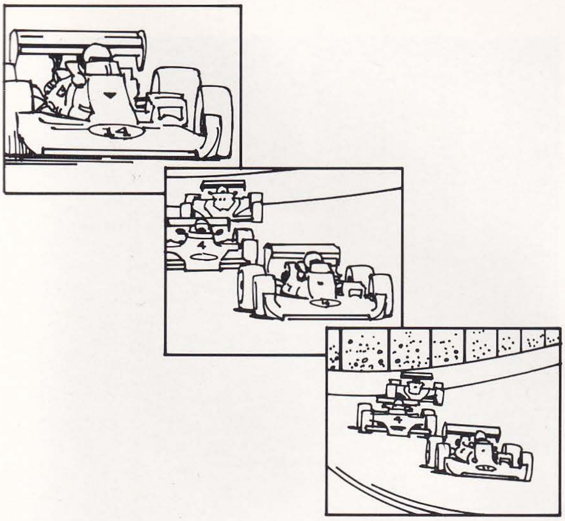
The Power Zoom Control is easily operated by placing two fingers on the control. For telephoto zoom, push the front part of the control ("T"). And for wide-angle zoom, push the back part of the control ("W").

Use the Power Zoom Control:

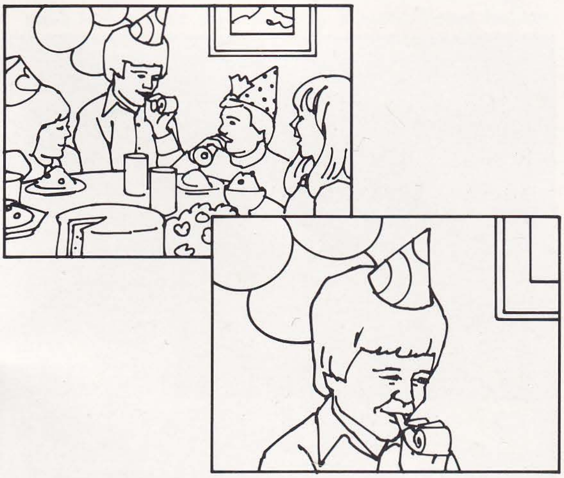
- When you want to achieve a smooth, even, professional-looking long zoom.
- For slight, subtle, controlled short zooms.



- **Zoom out (from telephoto to wide angle) when you want to start with a single element and expand by adding more of the surrounding scene.**



- **You don't always need to use the full range of the zoom lens. Use short zoom (example: from normal to telephoto range) for a more subtle effect.**



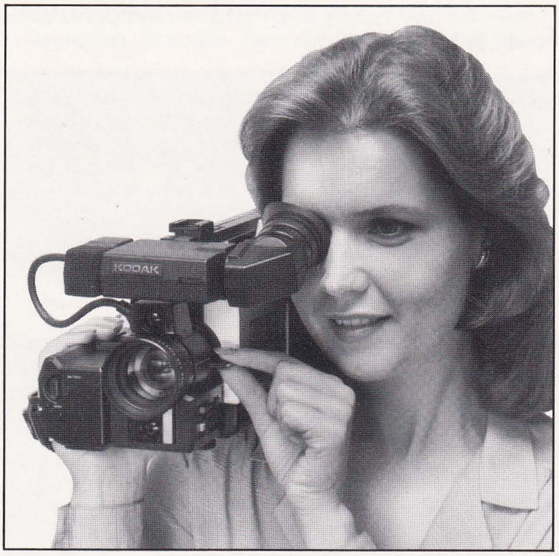
• When to use the Manual Zoom Control Lever

With the Manual Zoom Control Lever, the zoom lens range (from wide angle to telephoto) is the same as it is with the Power Zoom Control. However, the difference is that you can control the precise *speed* of the zoom (very fast, very slow, fast-and-slow, etc) when you zoom manually.

To operate the zoom manually, grasp the Manual Zoom Control Lever as shown here. Move it clockwise to zoom in (to telephoto), and move it counterclockwise to zoom out (to wide angle).

Use the Manual Zoom Control:

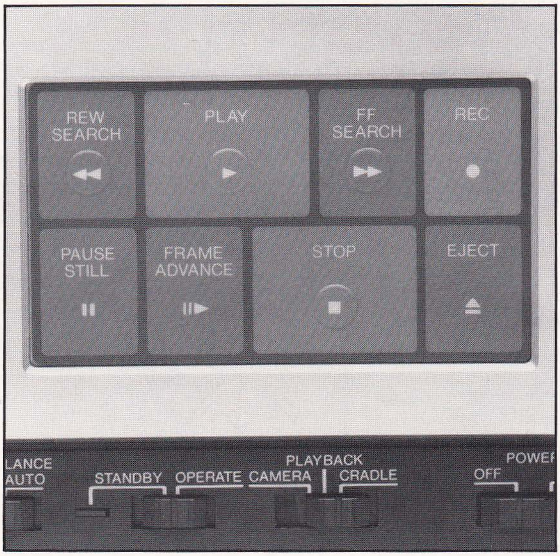
- When you want to create a strong or very dramatic visual effect (example: a very fast zoom out from a race car to create a feeling of speed).
- When you need variable speed control over the zoom lens feature (example: you want to start with a very slow zoom and end with a very fast zoom).



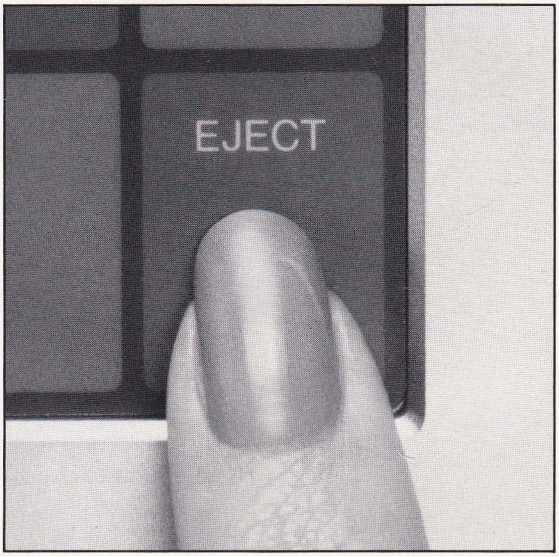
HOW TO USE THE CONTROL PANEL ON YOUR CAMCORDER

MODELS 2200 AND 2400

- **Camera/Playback/Cradle switch must be in "Playback" or "Cradle" position in order for control panel switches to function. "Eject" will function with Camera/Playback/Cradle switch in any position.**


REW SEARCH
PLAY
FF SEARCH
REC
PAUSE STILL
FRAME ADVANCE
STOP
EJECT
LANCE AUTO
STANDBY
OPERATE
PLAYBACK
CAMERA
CRADLE
POWER
OFF

- **Eject. Push and release to open tape compartment door to remove or insert a tape.**



- **Visual Search. When in the "Play" mode, you can scan the tape rapidly in forward or reverse. No audio will be heard.**

FF SEARCH
STO

- To scan forward, push and hold Fast Forward/Search button. Release when you want the tape to resume playing at normal speed.

- To scan in reverse, push and hold Rewind/Search button. Release when you want the tape to resume playing forward at normal speed.

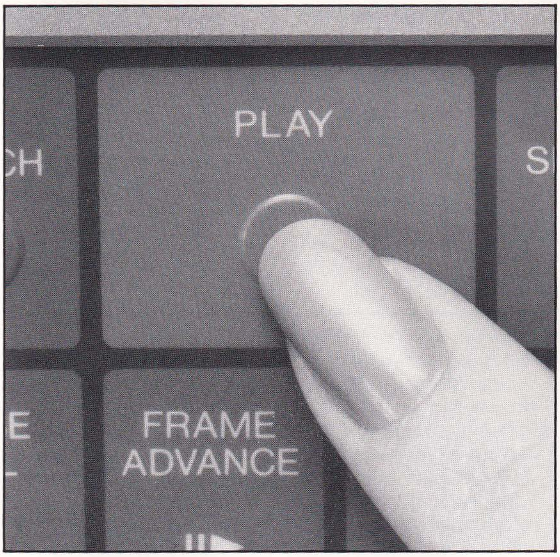
- **Fast Forward and Rewind. Use these features to move the tape in forward or reverse at high speeds without video or audio output.**

FF SEARCH
STO

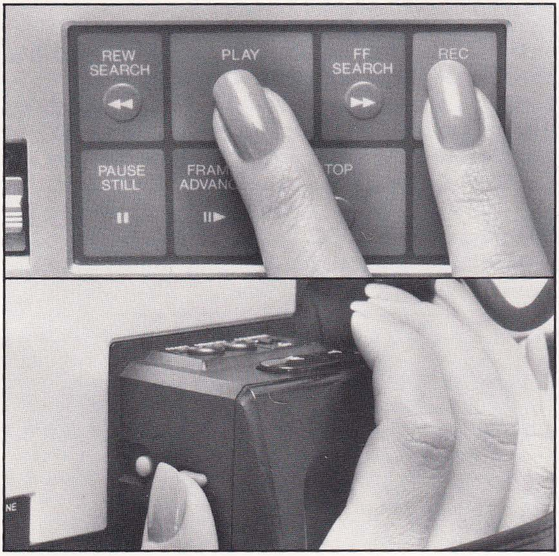
- While in the "Stop" mode, push and release Fast Forward/Search button, and tape will fast forward to "memory" position (see pages 20–21), end of tape, or until you push and release Stop button.

- While in the "Stop" mode, push and release Rewind/Search button, and tape will rewind to "memory" position (see pages 20–21), beginning of tape, or until you push and release Stop button.

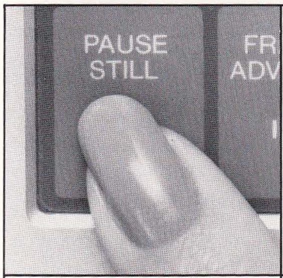
- **Play. Push and release to play back a recording.**



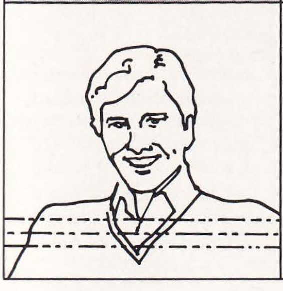
- **Record. Push Record and Play at the same time, then release. This is for recording *externally* generated video signals only (e.g. from a TV or another VCR, not for camera recording). For camera recording, push and release #20, the gray Record/Pause button.**



- **Still Frame. This feature lets you stop action and view a single frame of your recorded tape.**

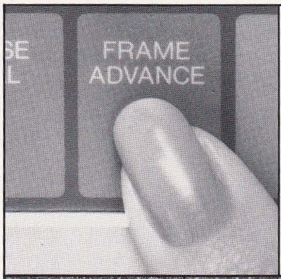


- Push and release Pause/Still button once to view still frame.
- Push and release Pause/Still button again to resume playing at normal speed.

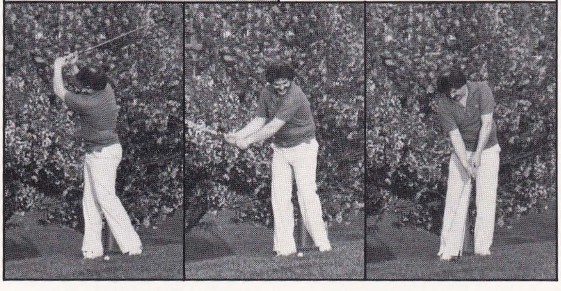


- When using the Still Frame feature on the Model 2200, you will most likely see "noise bars" in the frame. An example is shown in the frame at left. On the Model 2400, however, there is less likelihood of noise bars.

- **Frame Advance. Use this feature to view one frame after another. This is helpful when analyzing action or motion (example: analyzing a person's golf swing).**



- Push and hold Frame Advance button to view one single frame after another. Or, push and release Frame Advance button repeatedly.
- Push and release Pause/Still button once to resume playing at normal speed.



TIPS AND TECHNIQUES FOR SHOOTING VIDEO RECORDINGS

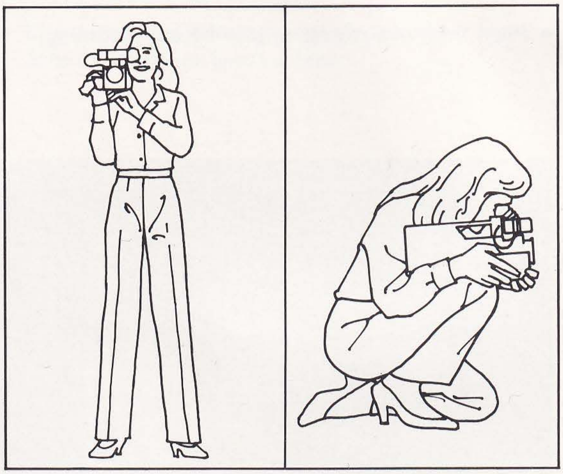
• Camcorder Handling

Proper camcorder handling is important for quality video recordings with your KODAVISION Series 2000 Camcorder. And even though your camcorder is lightweight, compact, and easy to hold, it must be held properly for best results.

The two most important basics to remember for camcorder handling are take it slowly, and take it steadily. When you are recording while hand holding your camcorder, every movement you make can appear as wobbles or jitters in your video recording. This is especially true when you shoot with your camcorder lens in the telephoto position, because a telephoto lens magnifies camera movement. So when you move, move slowly. And hold your camera as steadily as possible.

The suggestions at right will help you take it slowly, and steadily, every time.

• Basic Shooting Positions



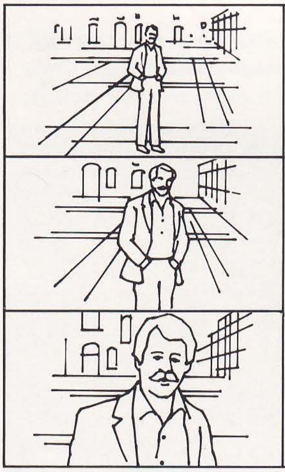
- The two basic shooting positions with your camcorder are standing, and kneeling.
- When standing, keep feet planted firmly with legs slightly apart, hold arms close to body, and steady camcorder with left hand. (Note: With Model 2400, be careful not to block Infrared Sensors.)
- When kneeling, support right or left elbow on one knee (whichever is most comfortable for you) and steady the camcorder with your left hand.

• Frequently Used Shots

If you looked at a photo album, and every photograph was made at the same angle and in the same way, it would be pretty boring. And this is true for video recordings as well. For professional-looking recordings, you need to use a *variety* of shots.

Variety helps create interest, holds viewer attention, builds continuity, and helps tell a story at the same time. And surprisingly, variety in video recordings is easy to create. Just try the frequently used shots explained here.

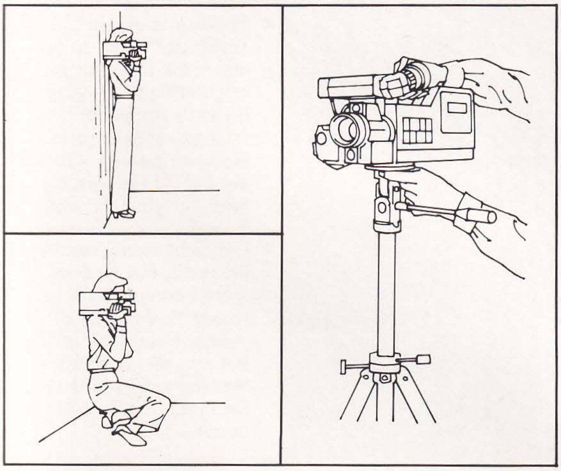
• The Three Basic Shots



- The long shot, or establishing shot, is made with the camcorder lens in the full wide angle position. This shot "sets the scene" and begins to tell a story.
- The medium shot identifies the subject and begins to tell you something about the subject, creating interest.
- And the close up shot fills in the details and helps complete the story.

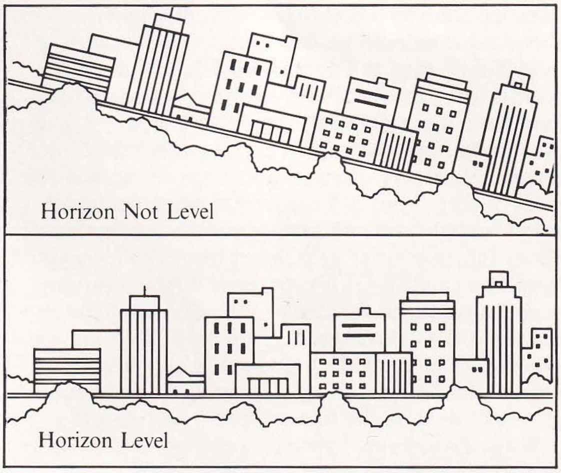
- The three basic "storytelling" shots are the long shot, medium shot, and close-up. These same three basic shots work equally well for shooting photographs, movies, and video recordings.

• Steady Stances



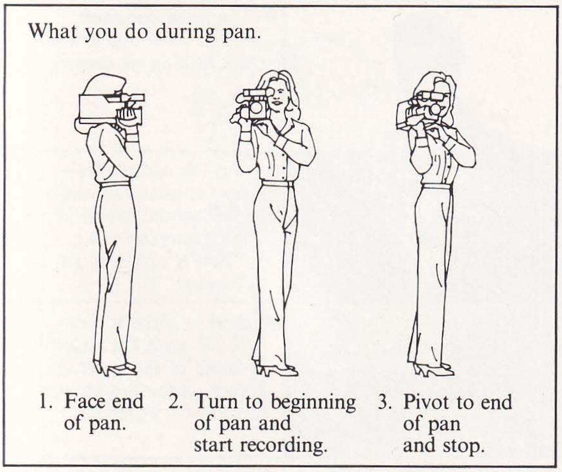
- For good control when shooting, try a steady stance.
- One alternative is to use the basic standing position, but lean against something such as a wall or light pole.
- Another option is to sit, and brace your back against a wall.
- A third possibility is to attach the camcorder to a tripod, using the standard tripod socket at the bottom of the camcorder.

• Keep Horizontal Plane Level



- Nothing is more disturbing than to see the horizon sliding off the edge of the frame.
- If the horizon line appears level in real life, that's the way it should look in your video recordings.
- If you keep a steady grip on your camcorder, and maintain a level stance while standing or moving, the horizon should remain level as well.

• Panning

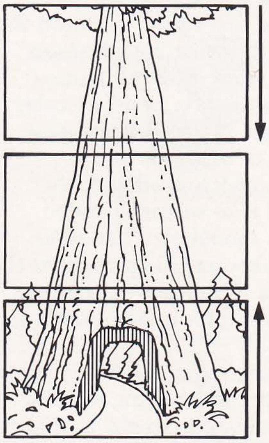


What you do during pan.

1. Face end of pan.
2. Turn to beginning of pan and start recording.
3. Pivot to end of pan and stop.

- Panning is moving the camcorder horizontally from left to right, or vice versa.
- Usually, a pan should be done slowly, so viewers can see the whole scene. But when following a moving subject (example: a marathon runner) then you should move the camcorder fast enough to follow the subject as you pan.
- It's a good idea to start and end a pan by holding steady for a few seconds.

• Tilting



- Tilt *down* to call attention to the lower area of a scene.
- Tilt *up* to dramatize the height of a subject.

- Tilting is actually much the same as panning, except it is done vertically rather than horizontally.
- Before recording a tilt shot, it's best to practice it a couple of times to be sure you can maintain steady control over the full range of the tilt.
- If you tilt *up* into the sky, be sure that you do not aim the camcorder toward the sun or other extremely bright light sources or objects as this could permanently damage the imaging tube.

CONTINUED . . .

TIPS AND TECHNIQUES, CONTINUED

• Lighting

Lighting is an important factor to consider when you shoot video recordings. The amount and quality of light can be used to establish specific moods or effects; low light for a soft, romantic mood; bright light for a more dramatic statement and so forth. But even more important, lighting has a direct bearing on the overall *quality* of your recording—especially the *color* quality. Your camcorder, for example, has a *minimum*-light-level sensitivity of 20 lux. (That's about the amount of light you'd have 1 foot away from two candles.) However, even though you can record a recognizable image with very *little* light in the scene, for overall quality you'll usually want to shoot with an adequate amount of light. And in general, that means *even* lighting that's bright enough to permit reading the fine print in a newspaper.

When considering lighting, remember that your camcorder viewfinder has an Illumination Level indicator—a white bar that moves up (more light) or down (less light) to indicate the relative light level in a scene. And if you're ever in doubt about the lighting, just preview the scene in your camcorder viewfinder. If the lighting looks inadequate in the viewfinder image, do a test shooting and take steps to correct the situation *before* you shoot.

• Indoor, Existing Light

- You can maintain the authentic "look" of normal room light but get brighter light by using higher wattage bulbs in existing room fixtures. However be sure you do not exceed the wattage rating of your fixtures.

- Candlelit scenes can be dramatic, but be sure there's enough light to recognize the faces of your subjects. (Note: do not aim the camcorder lens towards candle light for more than a few minutes.)

- Indoors, light can come from window light only, interior lights only, or some combination of the two. Always be sure to judge which light source is predominant (outdoor—sunlight, or indoor—tungsten) and set your camcorder's Indoor/Outdoor Switch accordingly.
- Note: When shooting under fluorescent light, the "Outdoor" setting usually works best.

• Sound

Your camcorder is equipped with a built-in omnidirectional microphone that works to record the *audio* portion of a scene at the same time the camcorder is recording the *video*. And this is appropriate, because the *sounds* of a scene are every bit as important as the *sights*. Try to imagine watching a video recording of a birthday or a wedding *without* the sound, and you will quickly realize just how vital sound is to successful video recordings. That's why you should plan the *audio* aspects of your camcorder shooting as carefully as the *video* aspects. And as you're shooting, you should remember to concentrate on capturing the sounds as well the sights.

That means positioning yourself in the best place to capture the sounds you want, and moving with the sound if the sound source moves (example: a person who is talking and walking at the same time).

• Think Sound

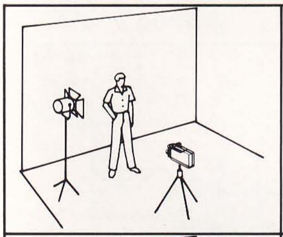
- The most common source of sound is a subject talking on camera.

- But the camcorder's microphone can easily pick up the sound of your narration (e.g. "This is our new cat, Tawney.")

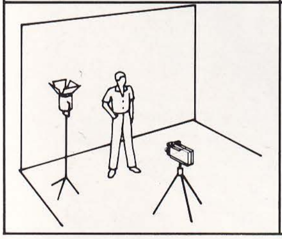
- And in some scenes, you'll want the natural sound of the scene itself, such as the thundering roar of a waterfall.

- Sound can add something to virtually any scene. You just have to think ahead.

• Indoor, Auxiliary Light



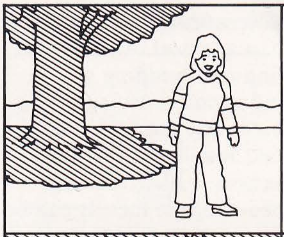
- Simple setup uses one light above and to one side of subject.



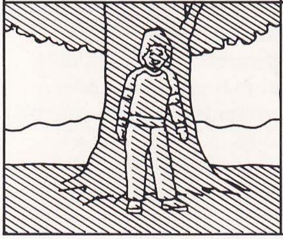
- For softer, more diffused lighting, bounce light off ceiling.

- When it's necessary to use an auxiliary light it can be positioned off the camcorder, or (if you or the subject will be moving around a lot) it can be mounted on the camcorder's Accessory Shoe.
- If it's necessary to use more than one auxiliary light, for consistent color it's best to use just one *type* of light (example: use all tungsten photoflood lights or all quartz halogen lights, but don't mix them).

• Outdoor Light



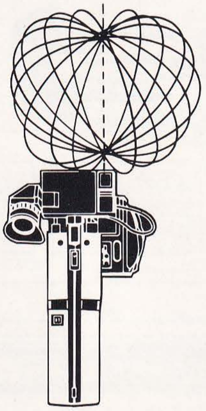
- When subject is in direct sunlight, try to keep the sun to your back while shooting.



- When subject is in shade, position where lighting is even and without backlighting. (Note: with Model 2400, you can compensate for backlighting. See page 24.)

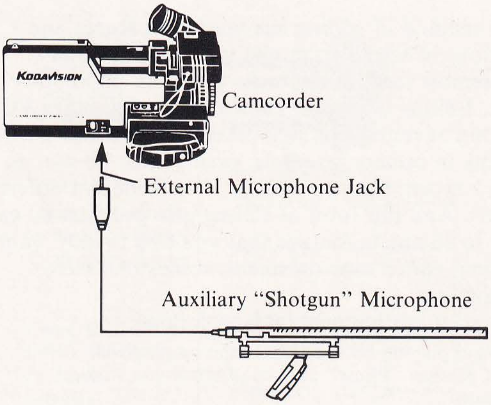
- When shooting outdoors, be sure that you do not aim the camcorder toward the sun or other extremely bright light sources or objects as this could permanently damage the imaging tube.

• Range of Built-in Microphone



- The microphone in your camcorder is an omnidirectional, condenser-type microphone. It will pick up sound over a *wide* area and a long distance. Sound *quality*, however, will be better the closer the sound is to the microphone.
- A good technique is to use the earphone to "monitor" sound as you prepare to shoot.
- The illustration above shows the general response pattern of the camcorder's microphone.

• Using an Auxiliary Microphone



- When you need a more *directional* microphone to isolate and record only the sounds in the direction you are shooting, you may use an auxiliary microphone such as the "shotgun" type microphone above.
- When a microphone is plugged into the camcorder's External Microphone Jack, the built-in microphone is automatically disconnected.

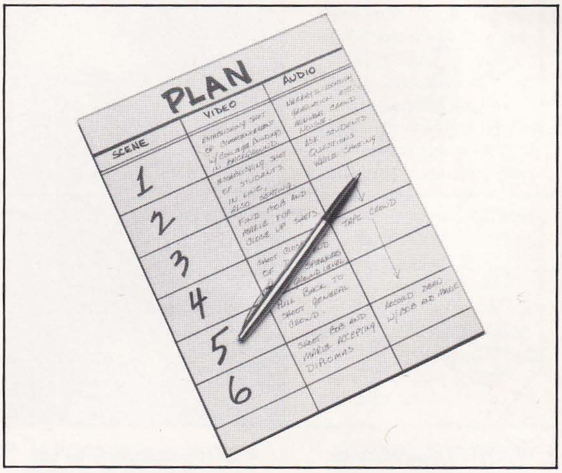
CONTINUED . . .

TIPS AND TECHNIQUES, CONTINUED

• Editing in Camera

When you play back a video recording, you want to see selected scenes arranged in a logical order. For example, for a video recording of a wedding you might start with the bride and groom arriving at the church, then the wedding ceremony, the bride and groom leaving the church, and finally the wedding reception. This selection process is called "editing," and it doesn't have to be done after the fact. It can be done *while* you shoot, if you know what you're doing, if you plan ahead, and if you shoot your scenes carefully. A video recording, carefully edited "in camera" as you shoot it, will make a much more enjoyable and professional presentation than one that is done haphazardly.

• Plan Video and Audio



- The secret of successful in-camera editing is to plan ahead. Before you begin shooting, take a few minutes to work up a plan.
- Decide the sequence of scenes, as well as their video and audio content. Then take your plan along with you and refer to it as you shoot.

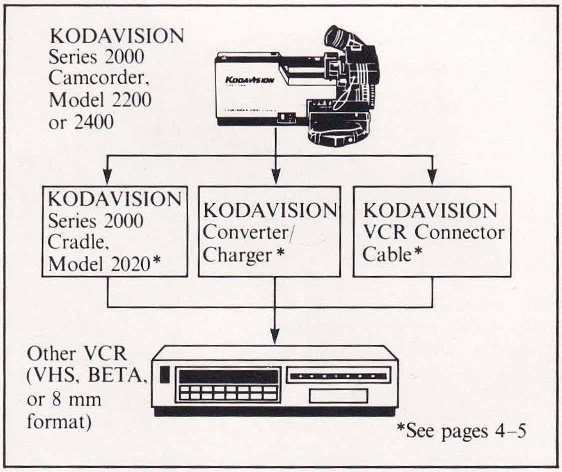
• Editing by Using Camcorder and Another VCR (VHS, BETA, or 8 mm format)

This method of editing lets you select scenes and portions of scenes from one recorded tape and reassemble them in the order you wish on another tape. Editing with your camcorder and another VCR is a big advantage if circumstances prevent you from editing in camera (example: events must be shot as they happen, but you wish to view them in a different order). And this form of editing also provides an easy way to eliminate footage that you don't really want on your edited tape (mistakes, scenes that were reshot, etc).

A good editing method is as follows:

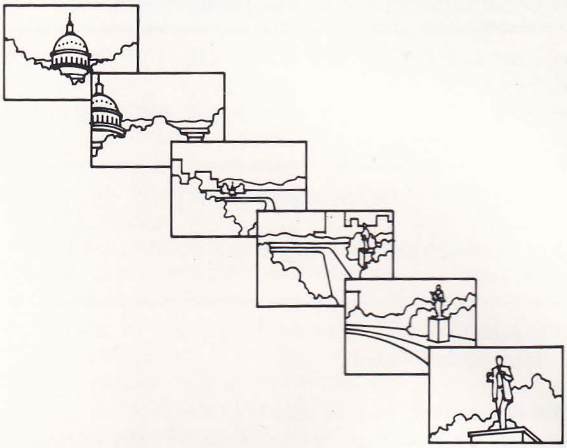
- Begin playing back original tape on playback VCR, then "Pause" at start of scene you wish to record.
- Place recording VCR in "Record" mode, then "Pause."
- Release both units from "Pause," but be sure to release the playback VCR about 1 second ahead of the recording VCR.
- Place recording VCR in "Pause" at end of scene you wish to record.
- Repeat steps to edit and assemble scenes in the order you wish.

• Accessories Required



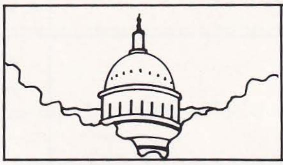
- Editing with your camcorder and another VCR (VHS, BETA, or 8 mm format) requires the addition of appropriate optional accessories such as those illustrated here for use between your camcorder and the other VCR. (See pages 6–7 and 18–19 for related information.)

• Scene Transition by Panning and/or Zooming



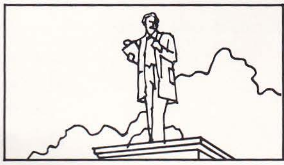
- You can create a smooth, logical transition from one scene to another by panning and/or zooming.
- At a wedding reception, for example, you could pan from a crowd scene to a couple sitting and talking, then zoom in to the couple holding hands.

• Scene Transition by Using Shoot—Pause—Shoot—Method



- Shoot scene one.

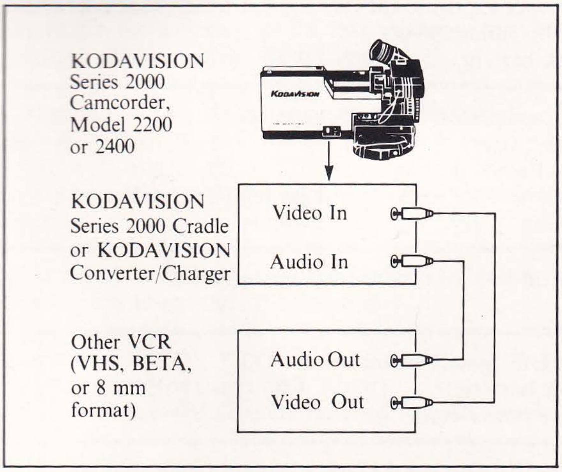
- Pause or stop recording while you prepare for the next scene.



- Then shoot scene two, etc.

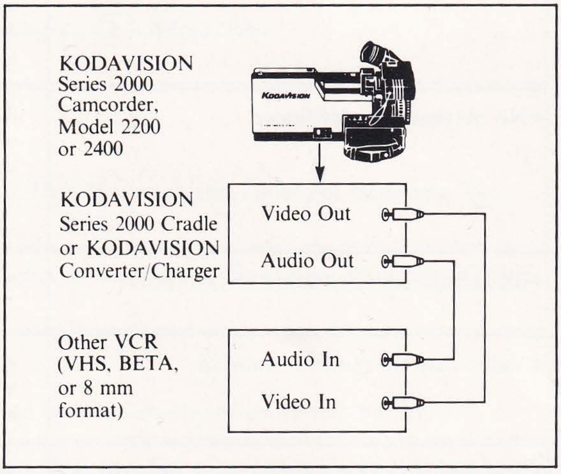
- Another simple method of creating scene transitions is to shoot one scene, pause or stop to prepare for the next scene, then shoot the next scene, etc.
- With the Model 2400, you have the option of using the Fade switch to create a gradual 3-second fade-in and fade-out for each scene. Your transitions will be most smooth if you plan around sound in the scene.

• Editing by Recording *from* Another VCR


KODAVISION Series 2000 Camcorder, Model 2200 or 2400
KODAVISION
KODAVISION Series 2000 Cradle or KODAVISION Converter/Charger
Video In
Audio In
Other VCR (VHS, BETA, or 8 mm format)
Audio Out
Video Out

- In this example, the tape you are editing *from* will be played back on the other VCR, and you will create a new, edited, 8 mm format tape on your camcorder.

• Editing by Playing Back *to* Another VCR


KODAVISION Series 2000 Camcorder, Model 2200 or 2400
KODAVISION
KODAVISION Series 2000 Cradle or KODAVISION Converter/Charger
Video Out
Audio Out
Other VCR (VHS, BETA, or 8 mm format)
Audio In
Video In

- In this example, the tape you are editing *from* will be an 8 mm format tape, played back on your camcorder, and you will create a new, edited tape on the other VCR (and in the tape format of that VCR).

CAMCORDER SYMPTOM ANALYZER

IF THIS SYMPTOM OCCURS:	THIS MAY BE THE CAUSE:
• Black spec or mark in the recording.	• Dirt on camera lens. • Exposure of camcorder lens to extremely bright light.
• Loss of power.	• Camcorder switches improperly set. • Weak battery. • Excessive condensation or high humidity, indicated by flashing "DEW" light in viewfinder.
• No picture in viewfinder.	• "Standby/Operate" switch improperly set. • Lens cap on. • Loose electronic viewfinder connector. • Weak battery.
• Focus not sharp.	• Dirt on camera lens. • Lens improperly focused. • Weak battery. • Lens is in macro focus position. • Improperly focused when "Manual/Auto Focus" switch is set to "Manual." (Model 2400 only). • Dirt on infrared sensors for "Auto" focus (Model 2400 only).
• Camcorder does not record.	• Weak battery. • Excessive condensation or high humidity, indicated by flashing "DEW" light in viewfinder. • "Erasure Prevention" switch on cassette is in "red" position. • "Camera/Playback/Cradle" switch is improperly set.
• Color picture not satisfactory.	• Inadequate lighting. • "Indoor/Outdoor" lighting switch is improperly set. • "White Balance Preset/Auto" switch is improperly set. • Improper exposure for backlighted scene (Model 2400 only.) • Dirt on camera lens. • Weak battery.
• No playback in viewfinder.	• Camcorder switches improperly set. • Weak battery. • Cassette not rewound. • Excessive condensation or high humidity, indicated by flashing "DEW" light in viewfinder.
• Still image contains some vertical jitter.	• Vertical-lock control needs adjusting.
• Video cassette can't be removed.	• "On/Off" power switch set to "Off." • Weak battery. • Loose power cord.
• Dropouts in picture (small black or white streaks which trace across screen).	• Dust, dirt, lint, smoke, and oxide on tape.

Before requesting service, you may be able to correct the problem yourself. Locate the symptom on the chart below, then follow the suggested procedure.

AND YOU CAN TRY THIS PROCEDURE:

• Remove dirt by breathing on the lens to form a mist and wiping with a lint-free cloth. • Have camcorder serviced.
• See pages 12–17 to determine proper settings. • Recharge battery or insert fresh battery. • Allow temperature of your camcorder to stabilize before operating. If condensation does not disappear, have camcorder serviced.
• Set switch to "Operate" mode. • Take off lens cap. • Make sure electronic viewfinder connector is securely plugged into camcorder. • Recharge battery or insert fresh battery.
• Remove dirt by breathing on camera lens to form a mist and wiping with a lint-free cloth. • Focus lens correctly. • Recharge battery or insert fresh battery. • Move "Manual Zoom Control Lever" out of macro focus range. • Focus camcorder manually or switch to "Auto." • Remove dirt by breathing on infrared sensors to form a mist and wiping with a lint-free cloth.
• Recharge battery or insert fresh battery. • Allow temperature of your camcorder to stabilize before operating. If condensation does not disappear, have camcorder serviced. • Change position of "Erasure Prevention" switch on video cassette from "red" to "black." • Make sure "Camera/Playback/Cradle" switch is in the "Camera" position for recording live action.
• Use auxiliary lighting. • Make sure "Indoor/Outdoor" switch is properly set. Use in "Outdoor" position for fluorescent light. • Set "White Balance Preset/Auto" switch to "Auto." • Set "Backlight" switch to "On" position. • Remove dirt by breathing on the lens to form a mist and wiping with a lint-free cloth. • Recharge battery or insert fresh battery.
• See pages 16 and 17 to determine proper settings. • Recharge battery or insert fresh battery. • Rewind to recorded area. • Allow temperature of your camcorder to stabilize before operating. If condensation does not disappear, have camcorder serviced.
• Adjust the screw located inside the camcorder battery compartment to obtain the most desirable image. Only a one-time adjustment should be necessary.
• Set switch to "On." • Recharge battery or insert fresh battery. • Make sure the cord is securely fastened to both camcorder and optional cradle (or converter/charger).
• To prevent this, store camcorder and tape properly, away from dust and dirt. If you have a tape that has been exposed to dust and dirt, do not use as it may damage the video heads on your camcorder.

WARRANTY AND SERVICE

WARRANTY

NOTE: Never ship or transport your camcorder inside the cradle. This will damage component parts and void the warranty.

FULL THREE-MONTH WARRANTY

This KODAVISION Video Equipment is warranted by Kodak to function properly for three months from date of purchase. Kodak makes no other express warranty for this video equipment.

Carefully read and follow the instructions in the manual to get the best results and prevent damage to your video equipment.

If this KODAVISION Video Equipment does not function properly within three months from date of purchase, *upon submission of dated proof of purchase,* Kodak will repair it without charge. If Kodak is unable to repair it, replacement of the video equipment or refund of the purchase price will be available. These remedies are not available if you fail to submit dated proof of purchase, if the video equipment is damaged by misuse or other circumstances beyond Kodak's control, or if the improper functioning of the video equipment is caused by failure to follow the care and operating instructions in this user's guide.

ADDITIONAL LIMITED WARRANTY

(Parts only excluding Record and Playback Heads and Pick-up Tube)

This KODAVISION Video Equipment, but not its Record and Playback Heads and Pick-Up Tube, is warranted by Kodak to function properly for the balance of the first year from date of purchase. Kodak makes no other express warranty for this video equipment and all implied warranties are limited to one year from date of purchase.

If this KODAVISION Video Equipment does not function properly during the balance of the first year from date of purchase, upon submission of dated proof of purchase, Kodak will install replacement parts. There will be a labor charge for the installation of any part and there will be an additional charge for the Record and Playback Heads or the Pick-up Tube if replacement of either is required. Service will be entirely at your expense if you fail to submit dated proof of purchase, if the video equipment is damaged by misuse or other circumstances beyond Kodak's control, or if the improper functioning of the video equipment is caused by failure to follow the care and operating instructions in this user's guide.

STATEMENT OF RESPONSIBILITY

This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

Repair, and the option of replacement or refund in the event that Kodak is unable to repair this video equipment within three months from date of purchase, are Kodak's only obligations under these warranties. Kodak will not be responsible for any consequential or incidental damages resulting from the sale or use of this video equipment, regardless of the cause of such damages. (Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you.)

SERVICE

If you have questions about your camcorder or have difficulty using it, carefully reread the sections of this manual that pertain to your questions.

Be Sure To Consult the "Camcorder Symptom Analyzer" on pages 38–39. This is especially important since it may help you avoid an unnecessary service call.

If you believe your camcorder does need service, you have several options:

1) Take your camcorder and a sample video cassette to your dealer of KODAVISION Products.
2) Send a letter describing the problem to Eastman Kodak Company, Consumer Information, Department 841V, 343 State Street, Rochester, New York 14650. Please enclose sample video cassette with your letter to aid us in helping you. Be sure to specify the model of your camcorder.

REPAIR

If your camcorder requires repair, you may send it to one of the following Kodak Service Centers either directly or through your dealer:

California
12100 Rivera Road
Whittier, CA 90606

Georgia
5315 Peachtree Industrial Boulevard
Chamblee, GA 30341

Illinois
1901 West 22nd Street
Oak Brook, IL 60521

New York
800 Lee Road
Rochester, New York 14650

Puerto Rico
Campo Rico Avenue and 246th Street
Country Club, Carolina, Puerto Rico 00630

Texas
2800 Forest Lane
Dallas, TX 75234

PACKING, SPECIFICATIONS, AND OWNER'S RECORD

PACKING INSTRUCTIONS

1. Include a note with your camcorder describing the problem and listing all the details, a dated proof of purchase, a sample video cassette, and your name and address. Please include a telephone number where you can be reached between 8:00 a.m. and 5:00 p.m.
2. Use a sturdy carton (preferably the original equipment packaging) and surround the equipment with packing material, such as crumpled newspaper. IMPORTANT: DO NOT pack the camcorder inside the optional cradle! This may damage component parts and void the warranty. Pack and ship in separate packages!
3. Fasten the carton securely with heavy-duty tape. Then clearly *print* both the address of the service center and your name and address on the top *and* bottom of the carton.
4. Mail the carton to Kodak. Remember to insure the equipment for its replacement value.

TECHNICAL SPECIFICATIONS

- Input Signals
  Video Input Impedance—75 ohms (1 Vp-p)
  Audio Input Impedance (Line)—More than 47 K ohms
  Signal Level (Line)— −20 db (0 db = 1 volt)
  External Microphone Input Level— −70 db (600 ohms)
- Output Signals
  Video Output Impedance— −75 ohms (1 Vp-p)
  Audio Signal Level (Earphone)— −28 db (8 ohms)
  Audio Signal Level (Line)— −8 ± 3 db (0 db = 1 volt)
- Power Line
  8.0 V dc
- Power Consumption
  Operate 8.3 W (Model 2400)
  8.0 W; (Model 2200)
  Standby 2.0 W
- Sensitivity (minimum light level)
  20 lux
- Image Sensor
  $^{1}/_{3}$-inch Newvicon tube
- Weight
  2.2 Kg (4.9 lbs.) without battery
- Dimension (mm)
  (excluding hood and lens cap)
  323 (w) x 133 (d) x 146 (h)
  (14.3 [w] x 7.2 [d] x 7.4 [h] in.)

OWNER'S RECORD

DATE PURCHASED: ______________________

FROM: ______________________

DEALER ADDRESS: ______________________

____

DEALER PHONE: ______________________

SERIAL #: ______________________

Consumer/Professional & Finishing Markets
EASTMAN KODAK COMPANY
Rochester, New York 14650

9-84-BX
Part No. **633681a**

M4E028

Kodak and Kodavision are trademarks.

Printed in the United States of America